

Draft Remedial Investigation Report

for
**Remedial Investigation /
Remedial Alternatives Analysis**

of
Martin Aaron Site
Camden City, Camden County, New Jersey



prepared for

**State of New Jersey
Department of Environmental Protection
Division of Publicly Funded Site Remediation
Trenton, New Jersey**

Volume I

June 2000 ©



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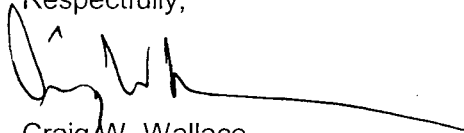
SUBJECT: Martin Aaron Site

Dear Mr. Ho,

Attached is a copy of the draft Remedial Investigation Report for the Martin Aaron site. This report includes the data from the phase-3 site investigation. The NJDEP is intending on finalizing this document during July 2000. We would appreciate any comments by 17 July 2000.

If you have any questions or comments, please contact me at (609) 984-3727.

Respectfully,



Craig W. Wallace
Site Manager

cc file

DRAFT REMEDIAL INVESTIGATION REPORT

FOR

**MARTIN AARON SITE
CAMDEN CITY, CAMDEN COUNTY, NEW JERSEY**

PREPARED FOR:

**STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF PUBLICLY FUNDED SITE REMEDIATION
TRENTON, NEW JERSEY**

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EBENSBURG, PENNSYLVANIA

TRENTON, NEW JERSEY

**DRAFT
June, 2000**

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**Draft Remedial Investigation Report
MARTIN AARON SITE
CAMDEN CITY, CAMDEN COUNTY, NEW JERSEY**

1.0 INTRODUCTION

L. Robert Kimball and Associates (Kimball) is submitting this report for Remedial Investigation (RI) activities at the Martin Aaron site located at 1542 South Broadway, Camden City, Camden County, New Jersey.

To meet the objectives of the RI, a field investigation was performed which included the following major components:

- Site reconnaissance and professional assessment/evaluation of the structural stability of buildings requiring invasive investigation, and the implementation of a monitoring plan to meter stability of said structures during those activities;
- Geophysical Investigation consisting of a comprehensive survey conducted over the yard area of the Martin Aaron property, using complementary geophysical techniques including: magnetics, electromagnetics (EM) and ground penetrating radar (GPR);
- Soil investigation including the drilling and sampling of soil borings and the excavation and sampling of test trenches/pits.
- Hydrogeologic investigation including the installation, development, and sampling of monitoring wells, as well as, Hydropunch® sampling;
- Sediment investigation which included the sampling of an operating skimming basin at the Rhodes Drum facility and an abandoned settling basin inside the former Martin Aaron complex;
- Site mapping and surveying to define site planimetrics, topography and the spatial location of all sampling points.

EXECUTIVE SUMMARY

This Remedial Investigation (RI) Report was prepared by L. Robert Kimball and Associates, Inc. (Kimball) for the New Jersey Department of Environmental Protection (NJDEP) Division of Publicly Funded Site Remediation. The RI was conducted to investigate soil and groundwater contamination at the Martin Aaron site located at 1542 South Broadway, Camden City, Camden County, New Jersey.

The Martin Aaron Site (a.k.a. Drum ^{acres} Service of Camden and Rhodes Drum, Inc.) is identified as Lot 1 of Block 460 in the Camden County Tax Assessor records for Camden City. The site presently is a roughly rectangular parcel of about 2.46. Various drum reconditioning operations were conducted within the former Martin Aaron building. Drums were drained, pressure washed with caustic solution, and wash rinsed in the front processing rooms. The residue from drum contents, rinsate runoff, and steam blowdown was collected in drainage tanks and floor drains. Drums were then taken to the paint booth located in the warehouse for final painting according to customer specifications.

Anonymous reports have indicated that liquid and solid wastes were routinely buried in the yard area of the site. Anonymous reports also indicate that between 200 and 1000 drums of containerized wastes were buried on the property. Site inspections conducted by the USEPA (1981) and NJDEP (1983) identified roll-off containers used for storage of hazardous waste had leaked onto the site soils. Leaking drums and fumes were observed during inspection of site trailers containing drums (USEPA, 1993). In addition, drums stored within the yard area were observed to contain holes and/or were stored upside down allowing contents to leak onto soils.

Previous sampling events conducted by the NJDEP between 1986 and 1993 identified organic and inorganic constituents in the site sewer basins and drums. Organic contaminants identified included chlorinated and aromatic volatile compounds. Inorganic analytes found at high concentrations in the site drainage system and drums included arsenic, cadmium, mercury, selenium, barium, chromium and lead. In January of 1987, the NJDEP, under search warrant issued by the New Jersey Department of Law and Public Safety, Division of Criminal Justice, collected samples from on-site drums and buried drums exposed in test pits, site soil and sewer basin effluent samples. Compounds detected in drum samples included methylene chloride, toluene, ethylbenzene, xylene and naphthalene. Soil samples were found to contain arsenic, cadmium, mercury, selenium, barium, chromium and lead.

Kimball conducted remedial investigations at the site between May and September 1997 (first investigation phase) between September and November 1998 (second investigation phase) and final delineation investigations between December 1999 and March 2000 (third investigation phase). Investigation activities included site mapping, a comprehensive geophysical investigation and stability analyses of the former Martin Aaron building. Environmental sampling of soil and groundwater was conducted in and around potential contaminant source and disposal areas and in areas which could be or have been impacted by contaminant migration. Investigations included both on-site and off-site areas of the property.

Results of intrusive remedial investigation activities indicate former site operations and disposal practices have resulted in contamination of surface and subsurface soil and shallow groundwater beneath the site. Findings of investigation activities included the following:

Geophysical surveys completed at the Martin Aaron site identified several areas of possible disposal of drums and other debris. Test pits excavated at interpreted geophysical anomalies generally encountered fill consisting of ash, cinders, brick, concrete, scrap metal, etc., at all excavation locations. Several excavations confirmed historical reports of former buildings. Subsurface disposal areas were confirmed at test pit locations in the north central portion of the site, in the northeast portion of the property and near the east property border. Subsequent activities by the NJDEP (underground storage tank removal) resulted in the discovery of some drums buried in the south central portion of the site. Results of the test pit excavation activities do not support reports of wide spread drum burial at the site.

Results of environmental sampling activities indicate surface and subsurface soil beneath the Martin Aaron building, throughout the yard area and beyond the property borders contain levels of organic and inorganic constituents in excess of the NJDEP soil cleanup criteria. The primary contaminants of concern within the site surface and subsurface soil include chlorinated and aromatic volatile organic compounds; semi-volatile compounds consisting mostly of polyaromatic hydrocarbons (PAH); pesticides/PCBs and metals.

Results indicate volatile contamination above the NJDEP Impact to Groundwater Soil Cleanup Criteria (IGWSCC) in the site near surface and subsurface soil extend beyond the property borders to the northeast, east and possibly the southeast. When compared to the NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC) and the NJDEP Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC), the extent of contamination is relatively unchanged extending across the property boundary to the northeast and possibly to the southeast. Semivolatile contamination above NJDEP soil cleanup criteria extends to the limits of current sampling. Analysis of total semivolatiles indicate the higher concentrations were identified on the site property extending to the northwest, and on the northern portions of the South Jersey Port Corp. property located across South Broadway. Results indicate the semivolatile contamination is site operations related. Pesticide and PCB contamination is generally confined to the site property extending from the former Martin Aaron building to the north, east and southeast property borders.

Inorganic contamination in the near and subsurface soil extends to the limit of current sampling completed to date. Analytes of concern include arsenic, barium, beryllium, cadmium, chromium and lead. When compared to the RDCSCC, the horizontal extent of inorganic contamination remains generally the same. However, results indicate that the apparent extent of contamination is disproportionately attributable to arsenic at concentrations above the NRDCSCC. Analysis of specific analytes, namely arsenic, cadmium and lead, indicate the highest concentrations are located on the Martin Aaron property extending to the east and northeast which is consistent with the extent of other organic contaminants.

Shallow groundwater contamination identified at the Martin Aaron site extends across the property and beyond the property borders to the east, south, and west. Based on sampling results, groundwater contamination is more prevalent in the shallow zone near the water table surface as opposed to deeper zones of the aquifer. Contaminant parameters detected in the shallow groundwater at concentrations above NJDEP Groundwater Quality Standards (GQS) include: chlorinated and aromatic volatile compounds; semi-volatile compounds; pesticides/PCBs and metals.

Contaminant parameters detected in the deeper groundwater include chlorinated hydrocarbons and metals but with much fewer compounds and analytes at concentrations above GQS.

2.0 ENVIRONMENTAL SETTING

The following sections present descriptions of the Martin Aaron site location, historical land uses, current and past site operations, and physical characteristics of surface and subsurface features as they relate to the field activities.

2.1 Site Background

The Martin Aaron Site (~~a.k.a. Drum Service of Camden and Rhodes Drum, Inc.~~) is located at 1542 South Broadway, Camden City, Camden County, New Jersey. The property is identified as Lot 1 of Block 460 in the Camden County Tax Assessor records for Camden City.

As shown on **Figure 1, Site Location Map**, the site is located in southwestern portion of Camden City at map coordinates 39°55'33" north latitude and 75°07'08" west longitude. The site presently is a roughly rectangular parcel of about 2.46 acres with 309.40 feet adjoining the east line of the sixty six foot wide South Broadway right-of-way and 334.30 feet adjoining the west line of the sixty foot wide Sixth Street right-of-way. The property is situated on relatively level land in mixed industrial and residential zoned properties.

One structure is currently located in the southeastern portion of the property. The former main structure, a three-story industrial building which occupied the southwest corner of the lot, was formerly occupied by the Westfall Ace Drum Company (Wadco) and is identified as the former Martin Aaron Building on **Figure 2, Site Layout and Topography**. The building was demolished (except for the concrete floor) by the City of Camden in November of 1998. Features associated with the former structure at the time of demolition include three underground storage tanks (USTs), located in the processing area immediately north of the former structure and one UST located east of the former structure. The USTs and associated contaminated soil were removed by the New Jersey Department of Environmental Protection (NJDEP) during the spring and summer of 1999. Prior to commencement of RI activities in 1997, five above ground storage tanks (ASTs) were removed by the NJDEP.

but could not be found

The remaining concrete floor of the former building contains a number of drains. The floor drains lead to three former settling basins. Settling basin 1 was located in the processing area of the former building and settling basin 2 is located east of the former building as shown on Figure 2. Settling basin 3 was reportedly located in the vicinity of basin 2. According to former site operators, all three basins reportedly received drum rinsate waters from site operations, and discharged to the Camden County Municipal Authority (CCMUA) sanitary sewer system although the actual discharge for basins 2 and 3 remains unknown. Basin 1 was removed by the NJDEP during UST removal activities in 1999.

The lone remaining structure, located in the southeast portion of the lot, was formerly occupied by Rhodes Drum Company and is identified as such on Figure 2. At the time of the Kimball field investigations, one processing vessel was located along the east side of the building. A single skimming basin (basin 4) was located east of the building. This basin received drum rinsate effluent from Rhodes Drum Co. operations and discharged to the CCMUA sanitary sewer system, posterior to pre-treatment activities. One AST, associated with these activities was located adjacent to basin 4. In the winter of 1999, the above structures associated with the former Rhodes operations were removed by the United States Environmental Protection Agency (USEPA).

The remaining site acreage, historically used for drum storage, consists of paved and unpaved surfaces. These areas are predominately open with most of the stacked drums having been removed by NJDEP. Figure 2 presents the property boundaries, planimetric features and topography for the site entirety.

Figure 2 also shows an additional property of concern located west of the Martin Aaron property, at 1535 South Broadway (Lot 15, Block 458) and owned by South Jersey Port Corporation. This property was formerly leased to Wadco, which used it for office space and drum receiving/sorting. Three commercial buildings occupy the lot, with the remaining acreage consisting of paved and unpaved lots.

2.1.1 Historical Land Use

Historical mapping and photography indicate the study area had been comprised mostly of light industrial and residential properties as early as the year 1886. These land uses have remained predominate to present day.

Historical records indicate that from 1887 to 1908, the site property was used as a tannery by Kifferty Morocco Manufacturing Co., who specialized in the tanning and glazing of hides and leathers. During this time, the facility's size tripled and adjacent industrial activity also increased.

In 1908, the property was purchased by Castle Kid Company, who retained ownership until 1940. The Castle Kid Company specialized in the manufacture of mat and glazed kid leathers. Sanborn Fire Insurance Mapping indicates that by 1921, the Castle Kid Company facility had developed into a large scale manufacturing complex. Facility expansion included a substantial amount of building construction and the addition of a railroad spur. Other significant additions included: a 200 gal. buried gasoline tank (located in the northeast corner of the site), coal stockpiles, a laboratory, a cafeteria, a liming system complete with four above ground settling tanks (also located in the northeast corner of the site) and an 85,000 gal. suction tank.

Historical mapping indicates that by 1926, the Castle Kid Company's tannery operation was on the decline. Sanborn Fire Insurance mapping represents that the facility had noticeably downsized. This concept is further evidenced by the fact that the site property was seized by the City of Camden for tax delinquency in 1940.

In 1940, the City of Camden sold the confiscated property to Benjamin Schmerling, who subsequently leased portions of the property to H. Preston Lowden Co. (Preston) and American Chain and Cable Company - Pa. Lawn mower Division (AC&C). Preston leased building space in the southwest corner of the property, and used it for a wool and hair blending operation. AC&C leased building space in the southeast corner of the property, and used it for the "physical plant" area of it's manufacturing facility.

Martin Aaron, Inc. purchased the property from Benjamin Schmerling in 1969, and remains owner of record at present. From 1969 to 1985, Martin Aaron operated a drum "recycling" business under the name "Drum Service of Camden". In 1985 the business was sold to a corporation jointly run by Westfall Ace Drum Company (Wadco) and Rhodes Drum Inc. (Rhodes), two major clients of the former Drum Service of Camden. Wadco occupied the majority of the remaining structures on the property, while Rhodes operated from a building in the southeast corner of the property (former AC&C facility). Wadco ceased operations in March of 1995. Operations at Rhodes Drum, Inc. ceased during the fall of 1997 and spring of 1998.

2.1.2 Site Production Processes

Martin Aaron Inc.

Drum Service of Camden, and most recently, Westfall Ace Drum Co., Drum Service of Richmond and Rhodes Drum Co. (currently active) all operated steel drum reconditioning facilities on the Martin Aaron property site. Former site operations were as follows according to a Case History prepared by the NJDEP Bureau of Planning and Assessment (NJDEP, 1988):

"Empty" drums were (and still are in Rhodes' case) transported to the facility via tractor trailer. The major transporters of these drums were Drum Service of Richmond and Wadco, who leased their vehicles from Martin Aaron.

As drums were brought into the facility or onto the adjacent property (1535 S. Broadway), they were segregated by type (open lid as opposed to bung-type) and visually/manually inspected to determine the amount of residual material, if any, remained in the drum. If greater than one inch of residue was present, the drum was returned to the customer. If less than one inch remained, the drums were taken into the facility, turned upside down over grate-covered, square-bottomed tanks and allowed to drain. After the residuals had drained, the drums were then pressure washed with a caustic solution which was also allowed to drain. The drums were then washed, rinsed and steamed dry. After drying, the drums were inspected for integrity. Dents were removed pneumatically and the drums were sandblasted with a fine steel pellet grit in preparation for final painting. A dust collection system (baghouse) was utilized during this operation. The drums were then taken to the paint booth where an enamel oil-based paint was applied, with the color being selected by the customer. The floor of the paint booth was reportedly covered with cardboard to facilitate clean-up, and these covers were drummed for disposal. the drums were allowed to dry and were then transported off-site. The estimated generation of hazardous waste from these activities was thirty 55-gallon drums every 60 to 90 days.

The residue from drum contents, rinsate runoff, and steam blowdown was collected in drainage tanks and floor drains which feed to four skimming basins. Basins 1, 2 and 3 collected effluent from the Martin Aaron facility and Basin 4 received effluent from the Rhodes Drum Co. facility. The steam tanks, pump tanks and floor drains/trenches were skimmed periodically, with the sludge being removed and drummed every 2 to 3 months. The water in the vessels was reused with approximately two gallons of caustic added to the steam tanks daily.

Basin 1 was located in the former processing area which was within the former building. The basin consisted of a baffled concrete pit, approximately four feet by eight feet with a depth of approximately five feet. A submersible pump was located in the influent side which activated a wastewater neutralization system when triggered by rising water level. This system was designed to lower the pH of the potential effluent (usually 12 to 14) to the pH limit (6 to 9) mandated by the CCMUA Permit No. 3412-Ca-1 requirements. However, reports indicate that a pipe existed between the baffle walls which might have allowed direct flow of untreated effluent to discharge. Basin 1 has subsequently been removed as part of the NJDEP UST removal actions conducted in the spring and summer of 1999.

Basins 2 and 3 were reportedly connected via pipeline and drained liquids primarily from the "open lid" drum reconditioning section of the former facility. Dye tests, conducted by NJDEP, from the outfalls of these basins did not indicate any connection to the CCMUA storm/sanitary sewer system as reported by site operators. Therefore, it may be construed that the effluent may have discharged directly to the subsurface. Both Basin 2 and 3 have reportedly been sealed with concrete by NJDEP.

Basin 4 was located east of Rhodes Drum Co. and was verified, via dye testing, to receive influent from the floor drains of the same. Construction of Basin 4 also roughly emulates that of Basin 1. The outfall of Basin 4 discharged to the CCMUA storm/sanitary sewer system and was permitted under CCMUA Permit No. 3412-Ca-5. Basin 4 has been removed by the USEPA in the winter of 1999.

In accordance with Community Right To Know Survey data collected in 1988, 1989, 1990 and 1993, the following substances were warehoused and used at the Martin Aaron property site during drum reconditioning procedures: Paint, lacquers, etc. (containing any or all of the following -Isopropanol, Toluene, Methyl Propyl Ketone, Naphtha and Mineral Spirits); No. 2 Fuel Oil; Toluene; Sodium Hydroxide; Hydrogen Chloride; Oxygen; Acetylene; Diethylaminoethanol; Potassium Hydroxide; No. 1 Fuel Oil; Waste Oil; Sulfuric Acid; and Kerosene.

2.1.3 Nature of Contamination

The Martin Aaron Inc. property is listed on the NJDEP Known Contaminated Sites In New Jersey (EPA I.D. NJD014623854). Numerous discharges of contaminants and hazardous substances to the soil and the CCMUA combined sanitary/storm water sewer system have been documented on the Martin Aaron Inc. site. Discharges to the soils and groundwater are suspected from buried wastes, underground storage tanks and effluent from ~~sewer~~ basins.

Anonymous reports have indicated that liquid and solid wastes were routinely buried in the yard area of the site. Anonymous reports also indicate that between 200 and 1000 drums of containerized wastes were buried on the property. One former employee of Drum Services of Camden reported his job duties included digging holes throughout the property for the disposal of wastes. Site investigations completed by the NJDEP under search warrant issued by the Division of Criminal Justice confirmed the reports of disposal. Buried drums containing hazardous waste and soils contaminated with hazardous substances were observed in test pits excavated to depths below the local water table.

Site inspections conducted by the USEPA (1981) and NJDEP (1983) identified roll-off containers used for storage of hazardous waste had leaked onto the site soils, and two tractor trailers containing 100 drums each were parked along side the facility. Leaking drums and fumes were observed during inspection of the trailers (USEPA, 1993). In addition, drums stored within the yard area were observed to contain holes and/or were stored upside down allowing contents to leak onto soils.

Extensive dye testing of ~~sewer~~ basins 2 and 3 were unsuccessful in locating an existing outfall. Effluent from the former Wadco/Martin Aaron operations entering these basins is presumed to have been discharged directly to the site soils and/or groundwater. In addition, a discharge pipe located in the influent side of basin 1 was observed to allow untreated waters to discharge prior to pH adjustment.

Seven above ground storage tanks, five constructed of metal and two constructed of polyethylene, were located in the process area outside the north wall of the building. The metal tanks were severely corroded. Concrete containment dikes surround the five metal tanks and the remaining area is covered by concrete pavement. Storm water apparently collects throughout this area and within the containment dikes. An oily sheen was observed on the standing water surrounding the area and within the dikes. Fill pipes leading to three underground storage tanks are located in this area. Discharges to surface runoff, site soils and groundwater are suspected from the USTs and their appurtenances.

Various drum reconditioning operations were conducted within the former Martin Aaron building. Drums were drained, pressure washed with caustic solution, and wash rinsed in the front processing rooms. The residue from drum contents, rinsate runoff, and steam blowdown was collected in drainage tanks and floor drains. Drums were then taken to the paint booth located in the warehouse for final painting according to customer specifications. The processing rooms and warehouse are evaluated as high concern due to these operations. Contaminants, paint residues, and waste water could possibly have been discharged to the site soils through cracks in the building floor and floor drains. Once in the soil, these contaminants may represent a source of contamination to the site shallow groundwater.

2.1.4 Previous Investigations and Enforcement Actions

Historical reports, inspections and investigations have determined that past site operations may have included improper disposal practices such as surface disposal of liquid wastes, burial of containerized waste and discharges from ~~sewer~~ basins. Inspections conducted by the USEPA (1981) and NJDEP (1983) identified roll-off containers used for storage of hazardous waste had leaked onto the site soils, and two tractor trailers containing 100 drums each were parked along the facility. Leaking drums and fumes were observed during inspection of the trailers (USEPA, 1993).

Results of previous sampling events were tabulated in a 1988 case history prepared by the NJDEP and are described below. On January 3, 1986, NJDEP personnel collected one effluent sample (sludge) from the on-site drainage system. 1,1,1-trichloroethane (5,900 ppb), toluene (14,000 ppb) and ethyl benzene (3,800 ppb) were detected in the sample. Extractable metals detected included barium (1.6 ppb) and cadmium (0.32 ppb). Sulfide and cyanide reactivity was not detected (NJDEP, 1988).

On January 9, 1986, NJDEP personnel collected one liquid sample (MH010) from a concrete drainage basin adjacent to South Broadway, one sludge sample (MH011) reportedly from a drainage basin along the south fence line, and one soil sample (MH012) from the northwest property corner. 1,1,1-Trichloroethane (10,000 ppb), trichloroethene (630 ppb), tetrachloroethene (650,000 ppb), toluene (51,000 ppb) and ethyl benzene (28,000 ppb) were detected in the liquid and sludge samples. Metals detected included arsenic, barium, cadmium, chromium, lead, mercury, nickel and selenium. Analytical results of soil sample MH012 showed methylene chloride (6,900 ppb), 1,1,1-trichloroethene (2,100 ppb), trichloroethene (15,000 ppb), tetrachloroethene (5,300 ppb) and toluene (4,700 ppb). Barium (7.2 ppb) was detected in the metal analysis (NJDEP, 1988).

On February 13, 1986, NJDEP collected one sludge sample from the ~~sewer~~ basin located outside the drum wash area. Petroleum hydrocarbon concentrations up to 10,000,000 ppb were detected. Metals identified included barium (4,400 ppb) and cadmium (1,300 ppb). The sample exhibited a pH of 12.2. No detectable levels of PCB were identified (NJDEP, 1988).

Between January 4 and January 29, 1987, the NJDEP, under search warrant issued by the New Jersey Department of Law and Public Safety, Division of Criminal Justice, collected a total of 40 samples from the site. Samples included twenty-two from on-site drums and buried drums exposed in test pits, eleven soil samples and seven effluent samples. Compounds detected in drum samples included methylene chloride, toluene, ethylbenzene, xylene and naphthalene at concentrations greater than 100,000 ppb and flash points below 75 degrees Fahrenheit. Soil samples were found to contain arsenic, cadmium, mercury, and selenium, including several concentrations of barium, chromium and lead in excess of 100,000 ppb. Effluent samples generally exhibited pH values greater than 12.5 (NJDEP, 1988).

On January 15, 1987, NJDEP collected one liquid and one sludge sample from each of three ~~sewer~~ basins on the site. Analytical results of the liquid samples identified methylene chloride (30,000 ppb), trichloroethene (460 ppb), tetrachloroethene (4,100 ppb), toluene (10,000 ppb), and ethyl benzene (27,000 ppb). Compounds detected in the sludge samples included 1,1,1-trichloroethane, tetrachloroethene, trichloroethene, toluene, ethyl benzene, and xylene at concentrations greater than 100,000 ppb. Metals identified included barium, cadmium, chromium, and lead. Petroleum hydrocarbon concentrations greater than 100,000 ppb were identified (NJDEP, 1988).

On May 13, 1993, NJDEP collected samples from five drums, two roll-off containers and two troughs on site. Analytical results of the drum samples indicated various volatile organic compounds and inorganics. Waste sludge samples collected from the roll-offs were found to contain volatile organics and inorganics including high levels of cadmium. No contaminants were detected in the trough samples.

Possible sources of contamination at the site include residues from steam tanks and floor drains, fallout from the spray painting operations, shot dust from the sand/shot blasting operations, solvents from paint-gun cleaning, and oil changes from vehicles and machinery and improper waste storage and disposal practices.

Prior remedial activities at the Martin Aaron site have been limited to removal of contaminated soil and drums excavated from test pit investigations conducted in January, 1987. Test pits were excavated north of the Rhodes Building and between the Martin Aaron and Rhodes building. Reports indicate that Aaxon Industries, Inc., a subcontractor to Martin Aaron, performed overpacking and disposal of excavated wastes and drums. Approximately thirty, eighty-five gallon overpacks and fifteen drums were removed from the site as hazardous waste under manifest numbers PAB 4770566 and PAB 4773204.

More recently, the NJDEP (summer and spring of 1999) and the USEPA (winter of 1999) conducted removal actions which included the removal of the USTs and Basin 1 associated with the former Martin Aaron operations and the removal of Basin 4, above ground tanks and piping associated with the former Rhodes operations. In both instances, surface and/or subsurface soil associated with the structures was also removed.

A number of orders, directives and notices of violation have been issued against Martin Aaron, Inc. and the Drum Service of Camden, Inc. (NJDEP, 1988):

A Notice of Violation was issued on 11/28/72 for the installation and operation of two spray paint booths without a permit. A permit was subsequently issued in 1973.

A Complaint, Compliance Order and Notice of Opportunity for Hearing was issued by the EPA on 10/26/81. Violations included leaks in the plastic liner and joint seals of a "roll-off" container, allowing discharge to the ground. Spills were noted in an area around this "roll-off" where drums were emptied into the container. Additionally, three hazardous waste containers were observed to be leaking.

A Notice of Violation was issued in August, 1983 for a negligent release of hydrogen chloride gas from improperly closed drums on the property.

A Notice of Violation (NOV) was issued by NJDEP in February 1984, for the transportation of hazardous wastes without a transporter's license, the acceptance of hazardous wastes from a generator without a manifest and the storage of hazardous wastes in a city street adjacent to the Martin Aaron, Inc. facility.

A Notice of Violation was issued by NJDEP on 03/04/85 for the discharge of hazardous substances ~~for the discharge of hazardous substances~~, non-notification of spills, and incomplete contingency plans and training of employees.

inadequate
A NOV was issued by NJDEP on 9/25/85 for the improper storage of waste drums.

A NOV was issued by NJDEP on 1/3/86 for the discharge of hazardous substances and failure to report the incident to the Department.

A NOV was issued by the NJDEP on 1/9/86 for the accumulation of hazardous wastes for more than ninety days and for failure to submit a RCRA Part A and Part B permit.

A NOV was issued by NJDEP on 2/13/86 for not having a EPA identification number, hazardous waste containers not securely closed, wrong or missing generators name on manifests, and no accumulation start dates on stored drums.

from Basins?
A NOV was issued by NJDEP on 5/29/86 for the discharge of hazardous substances into the sewer system. Specific dates of violation were January 9, February 13, February 25, and March 17, 1986.

An Administrative Order was issued by NJDEP on August 14, 1986. Violations included failure to place identification labels on hazardous waste containers, failure to properly store and segregate hazardous waste by type, Failure to place an accumulation start date visibly on containers, inadequate employee training, failure to inform hospitals of on-site wastes, schedule regular inspections by the local fire department, and failure to develop and maintain a contingency plan.

A second Administrative Order and Notice of Civil Administrative Penalty Assessment was issued on 1/13/87 for violations including storage of hazardous waste for greater than 90 days, failure to submit a RCRA Part A and Part B permit application, incorrect generator names on manifests, discharge of waste to the sewer system and failure to properly manage containers.

A NOV was issued by CCMUA on 3/24/87 for constant and consistent non-compliance with discharge permit limitations. *Basin 4?*

A third Administrative Order and Notice of Civil Administrative Penalty Assessment was issued on 6/10/87 for discharge of waste to the sewer system, inadequate employee training, failure to inform hospitals of on-site wastes, schedule regular inspections by the local fire department, and failure to develop and maintain a contingency plan.

A NOV was issued by NJDEP on 8/3/87 for unauthorized operation of a hazardous waste storage and disposal facility and discharge of hazardous waste.

A NOV was issued by the EPA on 10/30/87 for excessive volatile organic emissions from painting/coating operations.

A NOV was issued by NJDEP on 11/25/87 for not providing proper job descriptions and names of personnel for hazardous waste operations, and the illegal use of an underground waste oil tank. A second NOV was issued on the same date for storage of hazardous wastes for greater than 90 days.

A NOV was issued on 12/12/89 for failure to provide documentation concerning job descriptions, titles, and required training. A second NOV was issued on the same date for failure to forward generator state and TSD state copies of manifests NJAD0377731 and NJAD340826, and failure to conduct semi-annual drills.

A Directive was issued by NJDEP on 2/24/92 which required soil and groundwater investigations followed by the required remediation.

Two Field Directives were issued on 8/3/92 and 8/12/92 subsequent to site inspections and failure of the property owner to respond to the February Directive. The Field Directives restated the requirements and conditions of the February correspondence.

A Directive and Notice to Insurers was issued by the NJDEP on 11/1/94 requiring payment for the drum removal, remedial investigation and remedial alternatives analysis of the Martin Aaron, Inc. property.

A second Directive and Notice to Insurers was issued by the NJDEP on 4/6/95 requiring payment for the drum removal, remedial investigation and remedial alternatives analysis of the Martin Aaron, Inc. property. Named respondents included Martin Aaron, Inc., Drum Service of Camden, Drum Service of Richmond, Westfall-Ace Drum Company, Inc. (Wadco), and Rhodes Drum, Inc.

The respondents have not entered into an administrative consent order (ACO) with the NJDEP and the case has been transferred to the Bureau of Site Management, Division of Publicly Funded Site Remediation for the initiation of a Remedial Investigation/Remedial Alternatives Analysis.

2.2 Soils and Geology

The Martin Aaron site is located in the Atlantic Coastal Plain physiographic province in an area with moderate thicknesses of highly permeable unconsolidated sediment of Pleistocene and Cretaceous deposition which outcrop beneath the site and throughout the Delaware Valley (Kummel, 1940).

Soils in the vicinity of the site are most likely to represent Pleistocene age depositions of the Downer-Woodstown-Dragston soil associations as seen on **Figure 3, General Soil Map** (U.S. Department of Agriculture, 1966). The Downer-Woodstown-Dragston association consists mostly of sand and gravel deposited by streams and rivers. These soils formed from materials of the Cape May, Pennsauken, Cohansey, and Bridgeton geologic formations. The dominant soils in this association are the Downer, Woodstown, and Dragston, all of which are sandy. The Downer series consists of dark grayish-brown, well-drained sandy loam grading to a yellowish-brown sandy loam subsoil. The Woodstown and Dragston series consist of very dark grayish brown, poorly drained sandy loam surface layers. The subsoil is mottled yellowish brown or light olive brown sandy loam containing slightly more clay than the surface layers. These soils have been greatly disturbed on the site due to past industrial operations.

Intrusive remedial investigative activities conducted onsite indicate that the majority of top and shallow subsoils have been removed from the site and replaced with various fill materials, including:

construction debris (bricks, concrete, etc.); ashes and cinders; slag-type materials; and in minor cases, wood and refuse. This fill layer ranges from two to seven feet in thickness and is relatively consistent in its existence over the entire site.

The unconsolidated sediments immediately beneath the Pleistocene deposits consist primarily of sands and gravels with intervals of silts and clays classified as continental, coastal, or marine type deposits of Early to Late Cretaceous age. These deposits make up the Magothy Formation, the Raritan Formation and the Potomac Group of the Coastal Plain. The Cretaceous sediments generally strike northeast-southwest and dip from forty to one hundred feet per mile to the southeast (Langmuir, 1969). In the site vicinity, these sediments form the outcrop area of the Potomac-Raritan-Magothy (PRM) aquifer system which is a major source of potable water within the Coastal Plain of New Jersey. Intensive study of the PRM aquifer system (Farlekas et.al., 1976) show a three aquifer system in Camden County. Five mappable units are defined including three aquifers designated as upper, middle and lower, and two confining beds. The upper aquifer coincides closely with the Magothy Formation, the middle aquifer and confining bed coincides most closely with units of the Raritan Formation, and the lower aquifer and confining bed coincides most closely with units of the Potomac Group (Zapeczka, 1984).

The upper most depositional formation in the site vicinity, immediately underlying the Pleistocene deposits, is the Magothy Formation. The Magothy Formation is a sheet like deposit composed primarily of coarse beach sand and other near-shore marine deposits including light colored cross-stratified sand and lenses of dark clay (Gill and Farlekas, 1976). The Magothy ranges in thickness from 0 to forty five feet in the Camden area, thickening to the east to over two hundred feet (Langmuir, 1969). On-site borings evidence the existence of this formation, which was initially encountered at an approximate depth of ten feet, and ranged in thickness from fifty to fifty two feet. Refer to **Appendix A - Boring Logs** and **Figure 4, Geologic Cross Sections**. The Magothy Formation is considered to be the uppermost water bearing zone under the Martin Aaron site with groundwater under water table conditions. Groundwater within the Magothy Formation becomes effectively confined to the east by the overlying Merchantville Formation and Woodbury Clay.

The Magothy Formation lies unconformably atop the Late Cretaceous Raritan Formation. In the outcrop area of the Delaware Valley, the Raritan Formation consists of fluvial continental deposits including thick interbeds of light colored sands and massive to thick bedded variegated silty clay which make up part of the middle aquifer and confining bed between the middle and upper aquifers of the PRM system (Gill and Farlekas, 1976). Formation thicknesses of over sixty feet have been observed in the site vicinity increasing eastward. A number of distinct sand and clay members within the Raritan have been identified several miles northeast of the Camden area but are indistinguishable beneath the site. This is due to the highly variable nature, horizontally and vertically, of the formations predominantly fluvial character which accounts for abrupt changes in individual sand and clay bed thicknesses over short distances (Langmuir, 1969). The variability is also apparent in formation sand contents which range from 60 to 100 percent. Groundwater within the Raritan Formation is expected to exist under confined or semi-confined conditions.

The oldest group of sediments deposited within the Coastal Plain consists of Cretaceous continental deposits of the Potomac Group. In the site vicinity, the Potomac Group deposits are generally indistinguishable from the overlying Raritan Formation but probably is equivalent to the lower aquifer and confining unit of the PRM aquifer system. The Potomac Group consists of clay, silt, sand, and gravel. As seen in the overlying Raritan Formation, the fluvial depositional history of the Potomac Group sediments account for considerable amounts of silts and clays to be locally interbedded with

sands and gravel. Sand contents of the Potomac Group sediments are generally over 70 percent. Thicknesses of the lower aquifer and confining unit of eighty to one hundred feet have been reported in area well logs (Zapecza, 1984).

The Cretaceous deposits of the PRM system lie unconformably upon the early Paleozoic and Precambrian crystalline basement-bedrock complex. The basement rock erosional surface dips sixty to one hundred feet per mile from the outcrop area west of Camden to the southeast (Langmuir, 1969). In the site vicinity, the bedrock surface is characterized by east and south trending channels carved by the ancient Schuylkill and Delaware Rivers and their tributaries. The upper surface of the bedrock has been weathered into a micaceous residual clay which probably serves as a local confining bed below the Cretaceous unconsolidated sediments (Langmuir, 1969). Bedrock depths in the site area up to three hundred feet have been reported in local well logs.

2.3 Hydrogeology

The site is located within the outcrop area of the Potomac-Raritan-Magothy (PRM) aquifer system. Within the PRM aquifer system, five mappable hydrogeologic units are defined. The five units include three aquifers identified as the upper, middle and lower, and two confining beds (Zapecza, 1984). The PRM system in the site area has been observed to be over three hundred feet thick. The upper aquifer is the most extensive unit of the PRM system and coincides most closely with the Magothy Formation described above. Locally, groundwater within the upper aquifer has been encountered under water table conditions between 3.5 and 12.5 feet below ground surface. The confining bed between the upper and middle aquifers of the PRM system consists of thin- to thick-bedded sequence of micaceous silts and clays (Zapecza, 1984) with an estimated hydraulic conductivity of 10^{-6} cm/sec. Under the Martin Aaron site, the upper confining bed is expected to be less than twenty (20) feet thick. Intrusive on-site remedial investigative activities encountered what was believed to be the uppermost confining clay layer. The layer is identified as a gray clay with intermittent stringers of fine grained sand. Based on intrusive activities, Kimball has determined that this layer is at least five (5) feet thick and is located at depths between 57 and 63 feet beneath the site. A geotechnical sample obtained from (SB11) this layer (remolded to a density of 106.6 pcf) exhibited a hydraulic conductivity of 4.1×10^{-8} cm/sec. Refer to Appendix B - Geotechnical Testing Results

The middle aquifer of the PRM is located within the Raritan Formation described above. Hydraulic conductivities within the middle aquifer have been estimated at 10^{-4} cm/sec (USEPA, 1993). The middle aquifer has been traced within a ten to twelve mile wide band that parallels the outcrop area of the Delaware Valley (Zapecza, 1984). Down-dip (east) of the site, the middle aquifer cannot be distinguished from other sand beds of the Raritan Formation (Kummel, 1940). Groundwater of the middle aquifer is expected to be encountered under confined or semi-confined conditions beneath the site. The confining bed immediately underlying the middle aquifer consists primarily of very fine grained silt and clay sediment of the Potomac Group and Raritan Formation. Thickness of the middle confining bed below the Martin Aaron site is generally less than fifty feet.

The lower aquifer is located within the Potomac Group described above. Hydraulic conductivities within the lower aquifer have been estimated at 10^{-4} cm/sec. The lower aquifer in the site area covers approximately the same aerial extent as described for the middle aquifer.

Groundwater under water table conditions has been reported to be between 3.5 and 7.5 feet below ground surface on the site property (NJDEP, 1988). Static water levels obtained during remedial investigative activities evidence shallow groundwater levels between 5.25 and 14.40 feet below ground surface, and deeper groundwater levels between 13.83 and 15.43 feet below ground surface. Based on investigation observations and measurements, shallow groundwater flow within the upper aquifer is to the east-southeast. Deeper groundwater flow within the upper aquifer is to the east-southeast along the dip of the local formations. The easterly flow is expected to be additionally enhanced by groundwater withdrawal at various public and industrial supply wells located east of the site. On-site, building foundations and subsurface structures are believed to influence the movement of on-site shallow water.

Groundwater within the confined and semi-confined middle and lower aquifers is expected to flow southeast from the site along the formation dip but is likely to have been altered due to heavy pumping in the area.

Static groundwater levels measured within site monitoring wells mentioned above indicate the potential for vertical (downward) groundwater movement within the upper aquifer of the PRM. Vertical movement of site groundwater between the major aquifer units of the PRM system is expected to be limited based on reported hydraulic conductivities of the confining beds. Water table elevations and potentiometric surfaces measured in wells completed within the middle and lower aquifers indicate a downward vertical gradient exists in the site area. Extensive pumping and water withdrawal in the Camden area has created measurable decreases in the local static water table and potentiometric surfaces which may enhance the vertical migration of shallow waters into the deeper aquifers (Langmuir, 1969).

2.4 Topography/Drainage

Due to extensive urban development throughout the Camden area, surface water courses have experienced significant realignment and partial channeling. The site currently is surrounded by paved roadway surfaces and storm water sewers connected to the CCMUA combined storm/sewer system.

Historical drainage patterns are evident on Sanborn Fire Insurance maps which date back to the turn of the century. These maps indicate surface drainage from the property flowed northward into a lined ditch (Little Newton Creek) which marked the north property boundary. The ditch apparently carried stormwaters east to west along the north property boundary, discharging to the Delaware River. By 1926, the Little Newton Creek is no longer present on the historical mapping.

No industrial effluent is currently produced or processed at the site. Prior effluents were reportedly treated on-site prior to discharge to the sewer. During periods of heavy flow and high dilution, untreated waters may have been discharged (USEPA, 1993). Water entering the storm/sewer system are treated at the CCMUA facility prior to discharge into the Delaware River.

2.5 Surface Water Hydrology

As mentioned above, extensive urban development throughout the Camden area, has significantly altered surface water courses, causing notable realignment and partial channeling. The nearest body of surface water to the site is the Delaware River located approximately .75 miles west. Additional surface water bodies include Cooper River and Newton Creek located 2 miles north-northeast and 1.5 miles south of the site.

Examination of the National Flood Insurance Program, Flood Insurance Rate Map for Camden County New Jersey (City of Camden, 1989) evidenced that the site is located within the 100 year flood plain of the Delaware River. Episodes of flooding may be of concern due to the documented evidence of surface soil contamination on the property. Refer to **Figure 5, Flood Insurance Rate Map**.

During review of historical site records, a wetlands delineation in the vicinity of the site was not uncovered. The United States Department of the Interior National Wetlands Inventory Map of both the Camden and Philadelphia Quadrangles do not indicate wetland areas on the site (US Depart. of Interior, 1977). (Refer to **Figure 6, National Wetlands Inventory Mapping**) Wetland areas within one mile of the site occur to the southwest and west along the Delaware river. These areas are classified as Riverine, Tidal Open Waters; Riverine, Tidal Flat and Palustrine, Open Waters. Additional wetland areas have been identified along the Delaware River south of the site.

3.0 REMEDIAL INVESTIGATION

Remedial investigations at the Martin Aaron site were conducted in three phases. During the first phase (May to September 1997) sampling was conducted in and around potential contaminant source and disposal areas and in areas which could be or have been impacted by contaminant migration. Sampling was biased based upon previous investigation results, geophysical investigation results, visible indicators, environmental conditions, field instrument measurements, sensory characteristics, the location and nature of potential receptors, and other indicators. Soil borings and excavations, sampling from monitoring wells, and direct grab sampling techniques were utilized for the collection of samples.

Soil samples were collected from a total of fifteen building interior test borings, twenty five exterior on-site borings, one exterior off-site boring, thirteen UST area borings, twenty six test pit/trench excavations, two on-site monitoring well borings and two off-site monitoring well borings. Two rounds of groundwater samples were collected from the seven new monitoring wells plus the existing City of Camden Municipal Well No. 7. Two sediment samples were also collected from settling basins 1 and 4, located inside the former Martin Aaron facility and east of the Rhodes facility respectively. Hydropunch® groundwater samples were collected from twelve on-site boring locations.

During the second phase field investigation (September to November 1998) sampling was conducted at off-site areas to delineate the nature and extent of contamination identified during the first phase effort. When possible, sampling was biased towards adjacent properties and property boundaries, and identified "hot spots". Soil borings and well installation and sampling were conducted.

Soil samples were collected from a total of forty-four exterior off-site borings, three building interior borings, five on-site borings, and ten on-site PCB screening borings. One round of groundwater samples were collected from the seven existing monitoring wells installed as part of the first investigation phase, and seven new monitoring wells installed as part of the second phase of investigation. In addition, several soil borings were advanced to re-sample the site due to rejection of laboratory data from the first field effort.

During the third phase field investigation (December 1999 to March 2000) sampling was conducted at and around identified "hot spots", on- and off-site, to delineate the horizontal and vertical extent of worst case conditions and provide better volume estimates for later alternative analysis evaluation. Sampling was also conducted to evaluate conditions in the vicinity and beneath the former Rhodes building. Soil borings and well installation and sampling were conducted.

Soil samples were collected from a total of fourteen pesticide/PCB delineation soil borings, ten semivolatile delineation borings, and sixteen former Rhodes building delineation borings. Two rounds of groundwater samples were collected from the eleven remaining monitoring wells installed as part of the first and second investigation phases, and two new monitoring wells installed as part of the third phase of investigation.

Table 1 - Sampling Summary Table provides a summary of the samples collected and **Figure 7, Sample Location Map** shows the sample locations for all three phases of investigation (Refer to **Appendix A - Boring Logs** and **Appendix C: Sampling Logs**).

3.1 Phase I Field Investigation Activities (May to September 1997)

3.1.1 Structural Stability Analysis and Monitoring

During the pre-investigation site reconnaissance, Juan Salguero, Kimball Project Manager and licensed professional engineer in the State of New Jersey, conducted a building inspection. Particular attention was given to structural deficiencies of the building deemed potentially hazardous with regard to planned field activities. Components of the building structural integrity inspection included structural soundness, overhead hazards, possible asbestos containing areas, and other areas of concern including integrity of floor drains.

Results of the building inspection were reported to NJDEP by Kimball in the document *Building Safety Inspection Report*, dated August 30, 1996. (Refer to **Appendix D - Building Safety Inspection Report**). The report contained inspection procedures, areas inspected, interpreted results, findings and conclusions and recommendations regarding safety measures and implementation suggestions. Recommendations contained in the inspection report were incorporated into the project Health and Safety Plan (Kimball, 1997) and were implemented prior to any work within the building. Safety measures included:

- performance of a detailed examination of potential overhead hazards (pipes, debris, etc.) including visual inspection of the entire area and destructive/qualitative testing of supporting beams and joists;
- selection of buffer zones encompassing areas directly below overhead hazards, as well as interpreted potential trajectory paths of falling objects, which were subsequently cordoned off and avoided;
- the installation and periodic visual monitoring of fifteen Avanguard Calibrated Crack, Slope and Movement Monitors, to monitor the behavior of the structure during investigative activities.

3.1.2 Geophysical Investigation

A comprehensive geophysical investigation was conducted over the yard area of the Martin Aaron property not containing buildings or other immobile surface objects. The objective of the geophysical surveys was to locate suspected buried drums at the site. Results of the geophysical surveys were used to direct further investigations (drilling, test pits) in an attempt to more efficiently intercept possible site contamination and guide subsurface investigations clear of possible subsurface hazards.

Three complementary geophysical techniques: magnetic; electromagnetic (EM); and ground penetrating radar (GPR) were used at the site. The techniques are non-destructive.

3.1.2.1 Survey Grid

A ten feet by five feet survey grid, used for both the magnetic and EM surveys, was constructed over the survey area. East and west grid perimeters were marked at the profile interval (10 feet) using either wood stakes or marking paint depending on surface conditions. Each stake was labeled with the appropriate profile number. Profile numbers were assigned starting in the northwest corner of the grid with 1001, increasing southward by one to 1025. Two perpendicular baselines were constructed parallel to and at the approximate midpoint between the east and west grid perimeters. Profiles were established by stretching a rope/tape, marked at the station interval (5 feet), perpendicular to and between two corresponding perimeter stakes. Station numbers were assigned starting along the west grid perimeter with 101, increasing to the east by one to 189.

At the conclusion of the geophysical surveys, several perimeter stakes/grid points were surveyed to enable direct correlation between the established survey grid and project base mapping.

3.1.2.2 Magnetic Survey

Magnetic measurements were made with a proton precession magnetometer. This instrument simultaneously measures the amplitude of the earth's magnetic total field with a sensor affixed to the top of a staff and the vertical gradient of the total field between the top sensor and a lower one. Total magnetic field data was used to estimate subsurface objects location, size, depth and weight. Vertical gradient data was used to resolve complex or overlapping anomalies and aid in the identification of shallow targets.

Magnetic data were collected by walking along the rope and recording measurements at the station marks (flags on the rope at 5 foot intervals). When one profile was completed, the rope/tape was moved to the next set of perimeter flags and the process repeated. Cultural features were noted relative to the survey grid during data collection. Locations and descriptions of cultural features were used to identify anomalies caused by surface features.

A base station was established remote from any obvious cultural features that could disturb the base readings. Repeated readings at the base station were made at a minimum of every two (2) hours during each survey day. Base loop data was used to correct the raw data for instrument and diurnal drift.

Magnetic data were downloaded to a portable computer for processing. Preliminary contour maps were generated in the field and used to augment the selection of areas requiring more intensive investigation.

3.1.2.3 Electromagnetic (EM) Survey

EM data was collected using a Geonics EM-31 Terrain Conductivity Meter. The instrument uses horizontal (vertical dipoles) co-planar coils separated by a known distance. A transmitter coil radiates a continuous, known current into the ground which produces "eddy" currents. A receiver coil detects secondary EM fields produced by the eddy currents. The ratio of the transmitted to received signal is proportional to conductivity.

Data were collected along profiles following procedures described above for the magnetic survey. The EM operator maintained a minimum fifty (50) feet distance from the magnetometer operator so as to eliminate interference between the two instruments. EM measurements were recorded digitally using a Polycorder data logger. EM data were corrected for instrument drift before interpretation.

3.1.2.4 Ground Penetrating Radar (GPR) Survey

GPR data were collected using a Geophysical Survey Systems SIR-2 configured with a Model 5103 (400 MHz) antenna. The system radiates repetitive, short-time duration electromagnetic pulses into the earth from a broad-bandwidth antenna placed on the ground surface. Transmitted pulses are partially reflected back to the surface antenna by dielectric discontinuities in the subsurface produced by buried man-made objects or features. Continuous data were collected by towing the surface antenna along the prescribed profiles and recording the reflected signals digitally on magnetic media.

GPR profiles were established at each magnetic anomaly interpreted as representing buried metal. Profiles were located relative to Magnetic and EM survey grid coordinates. Data was collected in two perpendicular directions across each anomaly. A paper record of the reflected signals, produced on site

by means of a portable computer system for real-time interpretation, was used to augment the selection of areas requiring more intensive investigation..

GPR data do not require corrections or further processing for interpretation of results. Data are presented as profiles of reflected signals. Qualitative interpretations of anomaly locations, depth estimates and spatial dimensions were made in real-time.

3.1.2.5 Data Interpretation

Each data set was interpreted on it's own merit, then results were combined. Corrected magnetic and EM data was gridded using a minimum curvature program and contoured. Contour maps were overlain on a site base map to identify anomalies thought to be caused by surface features. Remaining anomalies interpreted as representing buried metal were highlighted and prioritized based on probability of containing buried drums. GPR data was processed to the extent required to produce the best quality results. Processing included such things as automatic gain control filtering and other digital filters. Anomalies thought to represent buried metal objects were highlighted on the records and posted on the site base map. Estimates of anomaly dimensions and depth were calculated from the records.

3.1.3 Soil Borings

Soil borings were utilized to further characterize site soils and to provide additional information concerning the horizontal and vertical extent of contamination in the unsaturated zone at the Martin Aaron Site. Borings were made using methods outlined in the project QAPP and in accordance with the Substance and Percolation Waters Act, N.J.S.A. 58:A-4.1. During boring activities, qualified Kimball personnel maintained continuous lithology logs, recorded sample and core characteristics, recorded FID readings, noted first encountered water levels and completed detailed monitoring well construction logs. Soil classifications were made in accordance with the Burmeister Soil Classification System. Borings included the following investigations:

- Interior Borings (former Martin Aaron Building Complex)
- Exterior Borings (On-site + Off-site)
- Underground Storage Tank (UST) Borings
- Monitoring Well Borings (On-site + Off-site)

3.1.3.1 Interior Borings

Seventeen interior borings were advanced utilizing Geoprobe® continuous split spoon sampling methods in the main process and warehouse areas inside the Martin Aaron main building complex. One additional boring (SB49) was advanced by split spoon sampling via sledgehammer. These borings were drilled to the first occurrence of groundwater. Three of the borings (SB34, SB35 and SB37) along the drainage trench in the central process area, were not completed, due to the presence of a reinforced concrete sub-floor that could not be penetrated by the Geoprobe® or jackhammer. (Refer to **Appendix A: Boring Logs**). Borings were drilled as follows:

- two borings in the floor drain/trench in the northeastern section of the process area (SB31 and SB32);
- two borings in the pits (one each) located in the southeastern section of the process area (SB38 and SB39);
- two borings in the wash down area in the central process area (SB33 and SB36);

- eight borings placed at strategic intervals throughout the floor of the warehouse area (SB40, SB41, SB42, SB43, SB44, SB45, SB46 and SB47);
- one boring in the process vessel containment area (SB49);
- three borings attempted in the central process area (SB34, SB35 and SB37).

Samples were collected from each completed boring (plus SB35). All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB31, SB32, SB33, SB36, SB38, SB40, SB41, SB42, SB43, SB44, SB45, SB46, SB47 and SB49, two samples per boring were sent to the laboratory and analyzed for Target Compound List (TCL) Volatiles + 10 Tentatively Identified Compounds (TIC), TCL Semivolatiles, Target Analyte List (TAL) Metals, Cyanide and TCL Pesticides/Polychlorinated Biphenyls (PCB). For borings SB35 and SB39, one sample per boring was sent to the laboratory and analyzed for TCL volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide, and TCL Pesticide/PCBs. Boring SB38 was also analyzed for Total Organic Halogens (TOX), Total Organic Carbon (TOC) and Particle Size. Borings SB36, SB38, SB39, SB41, SB44 and SB46 were also analyzed for Dioxin/Furan by USEPA SW-846 method 8290. Upon completion, all borings were grout sealed.

3.1.3.2 Exterior Borings

Nineteen exterior borings were drilled, using continuous split spoon sampling methods advanced by a combination of mud rotary and HSA techniques, in strategic locations throughout the open areas of the site. One additional boring (SB29) was drilled on an adjacent property. These borings were drilled to the first occurrence of groundwater, with the exception of boring SB11 (which was advanced to a depth of 63' to delineate the stratigraphy, confining layers and geotechnical properties of the unconsolidated zone in the site area, and borings SB08, SB17, SB19 and SB29 (which were advanced to allow Hydropunch sampling in the strata directly above what was identified as the first confining layer). (Refer to **Appendix A: Boring Logs**). Borings were drilled as follows:

- two borings along the western perimeter of the site (SB01 and SB02);
- four borings along the northern perimeter of the site (SB03, SB06, SB09 and SB14);
- three borings along the eastern perimeter of the site (SB17, SB18 and SB19);
- ten borings placed at strategic intervals throughout the remainder of the open area north of and between the Martin Aaron and Rhodes Drum buildings (SB04, SB05, SB07, SB08, SB10, SB11, SB12, SB13, SB15 and SB16).
- one boring in the mid-eastern portion of the South Jersey Port Corporation property, across the street (S. Broadway) from the site (SB29).

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB01, SB02, SB03, SB04, SB05, SB06, SB07, SB08, SB09, SB10, SB11, SB12, SB13, SB14, SB15, SB16, SB17, SB18, SB19 and SB29, two samples per boring were sent to the laboratory and analyzed for TCL volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide, and TCL Pesticides/PCB. Borings SB01, SB03, SB05, SB07, SB09, SB12, SB13, SB14, SB16 AND SB19 were also analyzed for TOX, TOC and Particle Size. Borings SB02, SB04, SB06, SB08, SB10, SB13, SB14 and SB16 were also analyzed for Dioxin/Furan. Geophysical samples were taken from potential confining layers in borings SB11, SB22 and SB27. Shelby tubes were planned for this activity but could not be taken due to the dense nature of the material (as evidenced by

our failed attempt on SB22). Thus, the samples were collected via split spoon, were homogenized and remolded; and then the composite tested for vertical permeability. (Refer to **Appendix B - Geotechnical Testing Results**). Upon completion, all borings were grout sealed.

3.1.3.3 Underground Storage Tank (UST) Borings

Thirteen borings were drilled to investigate the presence of releases from the UST/AST storage tank area located adjacent to the central process portion of the former Martin Aaron main complex building. . These borings were drilled to the first occurrence of groundwater, using the continuous split spoon method, advanced by hollow stem auger (HSA). (Refer to **Appendix A: Boring Logs**). Borings were drilled as follows:

- one boring adjacent to containment dike (SB48);
- two borings north of the tank area near the edge of the concrete apron (SB50 and SB60);
- two borings adjacent to the northern wall of UST 2 (SB51 and SB52);
- two borings adjacent to the northern wall of UST 1 (SB53 and SB54);
- one boring adjacent to the western wall of UST1 (SB55);
- one boring adjacent to the southern wall of UST 1 (SB56);
- two borings adjacent to the southern wall of UST 2 (SB57 and SB58);
- one boring south of the 9' diameter AST (SB59);
- one boring north of the 9' diameter AST (SB61).

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB50, SB51, SB52, SB53, SB55, SB56, SB57, SB58, SB59, SB60 and SB61, one sample per boring was sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide, TCL Pesticides/PCB, and Petroleum Hydrocarbons (TPH). For boring SB48, two samples were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB. For boring SB54, two samples were sent to the laboratory: the first was analyzed for TCL Volatiles+10; the second was analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide, TCL Pesticides/PCB, and TPH. Upon completion, all borings were grout sealed.

3.1.3.4 Monitoring Well Borings

Seven additional exterior borings were drilled for the purpose of installing monitoring wells in prescribed locations on and off-site. Shallow borings were performed using continuous split spoon sampling methods advanced by the HSA technique. Deeper borings were advanced using the mud rotary technique. (Refer to **Appendix A: Boring Logs**). Depths of borings were dictated by optimal placement of well screens in ensuing monitoring well installations. Well clusters MW-1, MW-2 and MW-3 were originally intended to have three borings/wells each (shallow, intermediate & deep water bearing zones). However, observed stratigraphy failed to identify suitable confining layers to support the need for deep wells at this time. Consequently, borings SB21, SB25 and SB28 were not performed. Borings were drilled as follows:

- two borings in the northwest corner of the site drilled for the installation of monitoring well cluster MW-1 (SB20 and SB22);
- two borings along the eastern perimeter of the site drilled for the installation of

- monitoring well cluster MW-2 (SB23 and SB24);
- two borings adjacent to the southern perimeter of the site, on the Comarco Products property, drilled for the installation of monitoring well cluster MW-3 (SB26 SB27);
- one boring in the mid-eastern portion of the South Jersey Port Corporation property, across the street (S. Broadway) from the site, drilled for the installation of MW-4S (SB30).

Samples were collected from selected borings. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB20, SB23, SB26 and SB30, two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB.

3.1.4 Test Pits/Excavations

A total of twenty four test pits (including four multi-pit excavations) and two sewer basin excavations were advanced on the Martin Aaron property to investigate anomalies identified by the geophysical investigation and investigate two sewer basins on the property. (Refer to **Appendix E: Test Pit Logs and Photos**). Test pits/excavations were excavated to the depth required to: expose the source of the observed anomalies; collect grab samples from suspect soils; and obtain samples from any drums or buried containers encountered. Excavation/backfilling/grading were performed by a qualified operator using a Bobcat Model 100 trac-excavator (w/dozer blade). The test pits/excavations were:

- one 20'x2'x5' deep excavation, investigating anomalies EM8 and M3, which uncovered construction debris and a concrete pad (TP01);
- one 12'x2'x5.5' deep excavation, investigating anomaly M3, which uncovered construction debris, a steel pipe and a concrete foundation (TP02);
- one 13'x2'x6' deep excavation, investigating anomaly M3, which uncovered construction debris and a concrete/brick foundation (TP03);
- one 12'x2'x3.5' deep excavation, investigating anomaly M5, which uncovered construction debris, a concrete pad and brick foundation (TP04);
- one 10'x2'x4' deep excavation, investigating anomaly M5, which uncovered construction debris and a concrete structure (TP05);
- one 15'x2'x5' deep excavation plus one (1) 4'x4'x5' deep perpendicular excavation, investigating anomaly M9, which uncovered construction debris and what appeared to be a concrete pipe chase (TP06);
- one 20'x2'x6' deep excavation plus one (1) 8'x2'x5' deep branch excavation, investigating anomaly M8, which uncovered black slag and cinders (TP07);
- one 18'x2'x4.5' deep excavation, investigating anomaly EM1, which uncovered construction debris, a concrete slab and a concrete pipe chase (TP08);
- one 14'x2'x4' deep excavation, investigating anomaly EM1, which uncovered construction debris, a concrete slab and a concrete pipe chase (TP09);
- one 17'x2'x5.5' deep excavation, investigating anomalies EM3 and M7, which uncovered construction debris and a concrete footing (TP10);
- one 15'x2'x5.5' deep excavation plus one (1) 8'x2'x5' deep adjacent excavation, investigating anomaly M1, which uncovered tires, construction debris, what appeared to be empty drum liners and a 1' dia. x 3' long concrete cylinder (TP11 & 11A);
- one 15'x2'x5' deep excavation, investigating anomaly M2, which uncovered black slag

- and construction debris (TP12);
- one 15'x2'x5.5' deep excavation, investigating anomalies M2 and EM4, which uncovered black slag and cinders (TP13);
 - one 17'x2'x5.5' deep excavation, investigating anomalies M1 and EM5, which uncovered a concrete footing and a 3.5" dia. metal pipe (TP14);
 - one 15'x2'x6' deep excavation, investigating anomaly M6, which uncovered a concrete footing and a 2" dia. metal pipe (TP15);
 - one 12'x2'x5.5' deep excavation, investigating anomaly M6, which uncovered black and gray cinders and a 2" dia. metal pipe (TP16);
 - one 12'x2'x6' deep excavation plus one 10'x2'x5' deep adjacent excavation, investigating anomaly M6, which uncovered black slag and cinders and one crushed metal drum (TP17 & 17A);
 - one 10'x2'x5.5' deep excavation, investigating anomaly EM4, which uncovered black and gray slag, a 8" dia. metal pipe and a 3" dia. metal pipe (TP18);
 - one 8'x2'x4.5' deep excavation, investigating the southeast corner of the site, which uncovered black and gray cinders and a 4" dia. metal pipe (TP19);
 - one 12'x2'x6.5' deep excavation, investigating anomalies M4 and EM7, which uncovered black slag and a concrete/brick foundation (TP20);
 - one 13'x2'x5' deep excavation, investigating anomaly M4, which uncovered black slag, plastic buckets, drum liners w/small amount of liquid, drum rings, partial fiber drums, various pieces of scrap metal and a "pocket" of a white powdery substance (TP21);
 - one 12'x2'x5.5' deep excavation, investigating anomalies M4 and EM7, which uncovered construction debris and a brick structure (TP22);
 - one 13'x2'x5.5' deep excavation, perpendicular to TP21 (M4), which uncovered black slag, plastic buckets, drum liners, wood and pieces of railroad rail (TP23);
 - one 12'x3'x4' deep excavation, in concrete apron adjacent to the UST area (M10 and EM10), which uncovered a concrete slab, some conduit pipe and a 10" dia. vertical pipe (TP24);
 - one 10'x2'x4' deep excavation, investigating sewer basin 4, which uncovered construction debris and the inlet pipe (SE03);
 - one 8'x2'x6' deep excavation and one 6'x2'x4' deep perpendicular excavation, investigating sewer basin 2, which uncovered black cinders, construction debris and a metal outlet pipe (SE01).

Samples were collected from selected test pits/excavations. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. For test pits/excavations TP01, TP06, TP09, TP10, TP13, TP14, TP17, TP18, TP20, TP21, TP24, SE01 and SE03, one sample per location was sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB. For test pit TP05, one sample was sent to the laboratory and analyzed for TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB. One additional sample was collected from a white powder discovered in test pit TP21. This sample was submitted to the laboratory and analyzed for TCL Semivolatiles+20, TAL Metals, Cyanide, TCL Pesticides/PCB and RCRA Compatibility. Sampling procedures followed those outlined in the final QAPP for soil sampling. Upon completion, each test pit/excavation was backfilled by replacing the exhumed material in shallow lifts and compacting it with the excavator bucket. Each location was then finish graded to approximate original contour using the dozer blade of the machine. Excess soils and/or excavated drum parts and liners were overpacked in approved drums pending disposal.

3.1.5 Monitoring Well Installations

Seven monitoring wells were installed on and in the vicinity of the Martin Aaron site, to evaluate extent and level of potential groundwater contamination, characterize site hydrogeology and validate the possibility of off-site migration of said contamination. Installations included:

- one monitoring well cluster in the northwest corner of the site consisting of two wells identified as MW-1S (shallow) and MW-1M (intermediate);
- one monitoring well cluster along the eastern perimeter of the site consisting of two wells identified as MW-2S (shallow) and MW-2M (intermediate);
- one monitoring well cluster adjacent to the southern perimeter of the site, on the Comarco Products property, consisting of two wells identified as MW-3S (shallow) and MW-3M (intermediate);
- one monitoring well in the mid-eastern portion of the South Jersey Port Corporation property, across the street (S. Broadway) from the site, identified as MW-4S (shallow).

The monitoring wells were installed in borings advanced for the soils investigation described above. Shallow unconsolidated wells MW-1S, MW-2S, MW-3S and MW-4S were installed in borings SB20, SB23, SB26 and SB30, respectively. Intermediate unconsolidated wells MW-1M, MW-2M and MW-3M were installed in borings SB22, SB24 and SB27, respectively. Well Construction details are provided in **Table 2 - Monitoring Well Construction Details**.

3.1.5.1 Shallow Unconsolidated Wells

Four shallow unconsolidated wells (as described above) were installed on-site and on adjacent properties to obtain near-surface unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics. Hollow stem augers (8" outside dia.) were used to extend the boreholes to depths necessary to successfully screen each well across the water table. A four inch dia., schedule 40 polyvinyl chloride (PVC) monitoring well was installed in each boring with a ten feet long four inch dia., .010 slot well screen situated across the water table phreatic surface, with at least two feet of screen above said surface. The well screen and riser were situated in the center of the borehole. A #1 Morie sand gravel pack was placed in the annular space, extending one to two feet above the screened interval. A #00 Morie fine sand pack, one foot in thickness, was placed on top of the gravel pack. The remainder of the annular space was filled with bentonite grout and/or Portland cement.

The monitoring wells were finished with water-tight, flush-mounted protective casings with twelve inch dia. covers. Each cover is clearly marked "Monitoring Well" and is stamped with the corresponding New Jersey Well Permit number. Riser pipes are fitted with water-tight, locking well caps, with locks for which all keyed alike.

After a suitable hiatus (min. 24 hours) allowing the grout in each well to "cure", the wells were developed by pumping until a turbid-free discharge was observed. A minimum of five well volumes were purged from each well. Three measurements of temperature, pH and specific conductivity were recorded during each episode. (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits** and **Appendix G: Well Development Records, Permits**).

3.1.5.2 Intermediate Unconsolidated Wells

Three intermediate unconsolidated wells (as described above) were installed on-site and on an adjacent property to obtain unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics immediately above the first confining layer beneath the site. Hollow stem augers (8" outside dia.) were used to extend the boreholes to depths necessary to successfully screen each well just above what was identified to be that first continuous confining layer. A four inch dia., schedule 40 polyvinyl chloride (PVC) monitoring well was installed in each boring with a ten feet long four inch dia., .010 slot well screen placed directly above the first evidence of said confining layer. The well screen and riser were situated in the center of the borehole. A #1 Morie sand gravel pack was placed in the annular space, extending to two feet above the screened interval. A #00 Morie fine sand pack, one foot in thickness, was placed on top of the gravel pack. The remainder of the annular space was filled with bentonite grout and/or Portland cement.

The monitoring wells were finished with water-tight, flush-mounted protective casings with twelve inch dia. covers. Each cover is clearly marked "Monitoring Well" and is stamped with the corresponding New Jersey Well Permit number. Riser pipes are fitted with water-tight, locking well caps, with locks for which all keyed alike.

After a suitable hiatus (min. 24 hours) allowing the grout in each well to "cure", the wells were developed by pumping until a turbid-free discharge was observed. A minimum of five well volumes were purged from each well. Three measurements of temperature, pH and specific conductivity were recorded during each episode. (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits and Appendix G: Well Development Records**).

3.1.6 Groundwater Level Measurements

Two rounds of groundwater synoptic water level measurements were obtained from all newly constructed monitoring wells. The first round was taken on 8/14/97 during the first round of water sampling. The second round was taken on 9/15/97 during the second round of water sampling. (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits** for measurement results). Groundwater level measurements were procured using a decontaminated water level indicator/electronic interface probe. No product interfaces were observed. Water levels were documented in both the field log book and on well sampling logs. (Refer to **Appendix C: Sampling Logs**). Groundwater level measurements and calculated groundwater elevations are provided in **Table 3 – Groundwater Elevation Measurements**. Visual representation of the phreatic surface of groundwater for each round of measurement can be found on **Figure 8, Shallow Groundwater Contour Map – 8/14/97 and 9/15/97** and **Figure 9, Deep Groundwater Contour Map – 8/14/97 and 9/15/97**.

3.1.7 Monitoring Well Sampling

Two rounds of monitor well sampling, spaced one month apart, were conducted to evaluate the groundwater quality characteristics of the site and to assess the possibility of migration of contamination from the site. Seven newly installed monitoring wells and one existing City of Camden municipal well, located approximately 3500 feet southeast of the site, were sampled. The monitoring wells were purged using a centrifugal pump (minimum three well volumes removed) and then sampled using disposable teflon bailers. Grab samples were collected directly from the sampling port on the municipal well pump after opening the valve and allowing it to run for approximately five minutes to purge the line. Sampling

procedures followed those outlined in the final QAPP for monitoring well sampling. Monitoring well samples were sent to the laboratory for analysis of TCL Volatiles+30, TCL Semivolatiles+30, TAL Metals and TCL Pesticides/PCB. Municipal well samples were sent to the laboratory for analysis of (USEPA SW846) method 524.2 Volatiles, Low Level Base Neutrals (BN), Low Level Metals and method 508 Pesticide/PCBs. (Refer to **Appendix C: Sampling Logs**).

3.1.8 Hydropunch® Sampling

Groundwater screening samples were collected from twelve of the exterior soil borings described in section 3.1.3 above. Samples were collected using a Hydropunch® II sampler. Hydropunch® sample locations were determined in the field based on geophysical investigation findings and field observations. Sample locations (SB01, SB06, SB07, SB08, SB10, SB13, SB14, SB15, SB16, SB17, SB19, and SB29) were chosen based on an expected groundwater flow direction from west to east, to evaluate groundwater in the vicinity of sewer basins, and evaluate groundwater in areas of suspected buried drums.

Soil borings SB01, SB06, SB07, SB10, SB13, SB14, SB15 and SB16 were advanced following procedures outlined in section 3.1.3 above. Once the groundwater table was reached, borings were advanced a minimum of two feet below this depth for the collection of groundwater samples. A Hydropunch® II sampler was driven into the saturated soils for the collection of water samples. The Hydropunch® consists of a hollow, stainless steel tube equipped with a polyethylene screen and drive point. The device is driven into the saturated zone to a sufficient depth as to create adequate hydrostatic head to partially fill the hollow body when the drive point is removed. Once the device is driven to the desired depth, the device is retracted a short distance which exposes the screen. The Hydropunch® was allowed to sit undisturbed for a sufficient amount of time to allow the required amount of formation water to enter the hollow tube. A Teflon bailer was lowered into the hollow tube to collect the water samples.

Soil borings SB08, SB17, SB19 and SB29 were extended to allow collection of a groundwater screening sample from immediately above the first confining layer. Borings will be extended following procedures described above using hollow stem auger drilling techniques. Once the total depth of boring was reached, groundwater samples were collected using the Hydropunch® methodology described above. Two attempts were required at SB19, due to malfunction of the Hydropunch® device during retraction.

Sampling procedures followed those outlined in the final QAPP for monitoring well sampling. One groundwater screening sample per boring was collected and sent to the laboratory for volatile organic analysis (USEPA SW-846 Method 8240/8260).

3.1.9 Sediment Sampling

Grab samples SD01 and SD02 were collected from the sediment material found in sewer basins 1 and 4 respectively. The samples were collected by scooping the sediment from the bottoms of each basin using a stainless steel/high density polyethylene (HDPE) dredging device. Samples collected were sent to the laboratory for analysis of TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB.

3.2 Phase II Field Investigation Activities (September to November 1998)

3.2.1 Soil Borings

Soil borings were utilized to further characterize site soils and to provide additional information concerning the horizontal and vertical extent of contamination in the unsaturated zone at the Martin Aaron Site. Borings were advanced as described in Section 3.1.3 above using a combination of hollow stem augering, rotary drilling, GeoProbe®, and split spoon sampling and in accordance with the project QAPP. Borings included the following investigations:

- Interior Borings (Former Martin Aaron Building Complex)
- Exterior Borings (On-site + Off-site)
- Monitoring Well Borings (On-site + Off-site)
- Re-sampling Borings (On-site)

3.2.1.1 Interior Borings

Three interior borings were advanced utilizing continuous split spoon sampling methods in the former one story brick structure immediately west of the former processing areas inside the Martin Aaron main building complex. (Refer to **Appendix A: Boring Logs**). Borings were drilled as follows:

- one boring in the southwest corner of the former one-story brick structure (SB111);
- one boring in the northwest corner of the former one-story brick structure (SB111);
- one boring in the eastern portion of the former one-story brick structure (SB112);

Samples were collected from each completed boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. Two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Inorganics, Cyanide and TCL Pesticides/PCBs. Upon completion, all borings were grout sealed.

3.2.1.2 Exterior Borings

Fifty four exterior borings were drilled, using continuous split spoon sampling methods advanced by a combination of Geoprobe® and HSA techniques, in strategic locations in the open areas of the site, at off-site locations surrounding the property border, and on the South Jersey Property located west of the site across Broadway. These borings were advanced to the first occurrence of groundwater (Refer to **Appendix A: Boring Logs**). Borings were advanced as follows:

- Seventeen borings on the South Jersey Port Corporation property, across the street (S. Broadway) and west of the site (SB63 to SB79);
- Five borings just beyond the west property border of the Martin Aaron Site along the east side of South Broadway (SB80 to SB84);
- one boring on property south of the former Martin Aaron Building (SB85);
- ten borings spaced between the north property border and the southern side of Everett Street (SB 86 to SB95).
- nine borings spaced between the east property border and the east side of Sixth Street (SB96 to SB99 and SB105 to SB109).

- two borings north of the former Martin Aaron building and north of the former processing areas (VOA1 and VOA2)
- ten borings strategically located around Total PCB "hot spots" within the yard area of the Martin Aaron property (PCB1 to PCB10)

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB63 to SB99 and SB105 to SB109, two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB. For borings VOA1 and VOA2, two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10. For borings PCB1 to PCB8 and boring PCB10, two samples were collected and field screened for Total PCB utilizing the Ensysis Inc. PCB RIS[®] Soil Test System. Due to sample recovery problems, one sample was collected from boring PCB9 and field screened for Total PCB using the above system.

3.2.1.3 Monitoring Well Borings

Seven additional exterior borings were drilled for the purpose of installing monitoring wells in prescribed locations on and off-site. Shallow borings were performed using continuous split spoon sampling methods advanced by the HSA technique. Deeper borings were advanced using the mud rotary technique. (Refer to **Appendix A: Boring Logs**). Depths of borings were dictated by optimal placement of well screens in ensuing monitoring well installations. Borings were drilled as follows:

- one boring in the central portion of the yard area north of the former Martin Aaron building for the installation of monitoring well MW5S (SB115);
- one boring in the former processing area north of the former Martin Aaron building and east of the existing under ground storage tanks for the installation of monitoring well MW7S (SB113);
- one boring east of the former processing areas of the former Martin Aaron building for the installation of monitoring well MW6S (SB114);
- one boring in the northwestern corner of the South Jersey Port Corporation property, across the street (S. Broadway) from the site, drilled for the installation of monitoring well MW8S (SB62);
- two borings southeast of the Martin Aaron site on the east side of Sixth Street for the installation of monitoring well cluster MW9 (SB116 and MW9D);
- one boring east of the Martin Aaron site on the east side of Sixth Street for the installation of monitoring well MW10S;

Samples were collected from selected borings. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB62, SB113, SB114, SB115 and SB116, two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB.

3.2.1.4 Re-Sampling Borings

Validation of analytical results for samples collected by Kimball between May 12, 1997 and September 16, 1997 indicate all semi-volatile and some volatile results were rejected for not meeting contract

Quality Assurance Requirements as described in Section 4.4.2.1 below. Kimball was directed by the State to present a Corrective Action Plan outlining the method and justification for re-sampling of surface and sub-surface soil. Based on the approved re-sampling plan, fourteen additional soil borings were advanced throughout the yard area and within the warehouse portion of the former Martin Aaron building for the purpose of re-sampling. Borings were advanced as described in Section 3.1.1 above using a combination of GeoProbe®, and split spoon sampling and in accordance with the project QAPP. Borings were advanced as follows:

- three building interior borings within the former three-story warehouse portion of the former Martin Aaron building adjacent to existing soil borings SB42, SB43 and SB46 designated as SB42A, SB43A and SB46A, respectively.
- eleven exterior borings adjacent to existing borings SB01, SB02, SB03, SB09, SB11, SB13, SB15, SB16, SB23, SB19 and existing test pit TP13 designated as SB01A, SB02A, SB03A, SB09A, SB11A, SB13A, SB15A, SB16A, SB23A, SB19A and TP13A, respectively.

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For boring SB01A, two samples were sent to the laboratory and analyzed for TCL Volatiles+10 and TCL Semivolatiles+20. For the remaining borings, two samples per boring were sent to the laboratory and analyzed for TCL Semivolatiles+20.

3.2.2 Monitoring Well Installations

Seven monitoring wells were installed on and in the vicinity of the Martin Aaron site, to further evaluate extent and level of potential groundwater contamination, characterize site hydrogeology and validate the possibility of off-site migration of said contamination. Monitoring well construction details are provided in **Table 2**. Installations included:

- one shallow monitoring well in the central portion of the yard area north of the former Martin Aaron building identified as MW5S;
- one shallow monitoring well in the former processing area north of the former Martin Aaron building and east of the existing under ground storage tanks identified as MW7S;
- one shallow monitoring well east of the former processing areas of the former Martin Aaron building identified as MW6S;
- one shallow monitoring well in the northwestern corner of the South Jersey Port Corporation property, across the street (S. Broadway) from the site, identified as MW8S;
- one monitoring well cluster consisting of two wells southeast of the Martin Aaron site on the east side of Sixth Street identified as MW9S (shallow) and MW9D (intermediate);
- one shallow monitoring well east of the Martin Aaron site on the east side of Sixth Street identified as MW10S;

3.2.2.1 Shallow Unconsolidated Wells

Six shallow unconsolidated wells (as described above) were installed on-site and on adjacent properties to obtain near-surface unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics. Shallow monitoring wells were installed and developed as described in Section 3.1.5.1 above (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits**).

3.2.2.2 Intermediate Unconsolidated Wells

one intermediate unconsolidated well (as described above) was installed down-gradient of the site to obtain unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics immediately above the first confining layer beneath the site. Intermediate monitoring wells were installed and developed as described in Section 3.1.5.2 above (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits** and **Appendix G: Well Development Records**).

3.2.3 Groundwater Level Measurements

One round of groundwater synoptic water level measurements were obtained from all newly constructed monitoring wells and existing monitoring wells installed as part of the first investigation phase. Synoptic water level measurements were taken on 11/10/98 during the groundwater sampling event (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits** for measurement results). Groundwater level measurements were procured using a decontaminated water level indicator/electronic interface probe. No product interfaces were observed. Water levels were documented in both the field log book and on well sampling logs. (Refer to **Table 3** and **Appendix C: Sampling Logs**). Visual representation of the phreatic surface of groundwater for each round of measurement can be found on **Figure 10, Shallow Groundwater Contour Map - 11/10/98** and **Figure 11, Deep Groundwater Contour Map - 11/10/98**.

3.2.4 Monitoring Well Sampling

One round of monitoring well sampling was conducted to further evaluate the groundwater quality characteristics of the site and to assess the possibility of migration of contamination from the site. Seven newly installed monitoring wells and seven existing monitoring wells were sampled. Sampling procedures were as described in Section 3.1.7 above. Monitoring well samples were sent to the laboratory for analysis of TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB (Refer to **Appendix C: Sampling Logs**).

3.2.5 Monitoring Well Abandonment

Two monitoring wells (MW3S and MW3M) located on the property immediately south of the former Martin Aaron building complex and installed as part of the first phase of investigation were abandoned. Well abandonment took place on 11/16/98 and was performed by James C. Anderson Associates, Inc. of Mt. Laurel, New Jersey (JCA). Well abandonment procedures were in accordance with NJDEP Bureau of Water Allocation requirements (Refer to **Appendix F: Monitoring Well Construction Diagrams**).

3.3 Phase III Field Investigation Activities (December 1999 to March 2000)

3.3.1 Soil Borings

Soil borings were utilized to further characterize site soils and to provide additional information concerning the horizontal and vertical extent of contamination in the unsaturated zone at the Martin Aaron Site. Borings were advanced as described in Section 3.1.3 above using a combination of hollow stem augering, rotary drilling, GeoProbe®, and split spoon sampling and in accordance with the project QAPP. Borings included the following investigations:

- Pesticide/PCB Delineation Borings (On-site)
- Semivolatile Delineation Borings (On-site + Off-site)
- Rhodes Building Investigation Borings (On-site + Off-site)
- Monitoring Well Borings (Off-site)

3.3.1.1 Pesticide/PCB Delineation Borings

Fourteen Pesticide/PCB Delineation borings were advanced, utilizing continuous split spoon sampling methods and Geoprobe® techniques, in areas north and east of the former processing areas of the former Martin Aaron main building complex. (Refer to **Appendix A: Boring Logs**). Borings were drilled as follows:

- Four borings in the west-central portion of the yard area around previous boring SB04 (SB144, SB145, SB146, SB147);
- Four borings in the north-central portion of the yard area around previous test pit TP09 (SB148, SB149, SB150, SB151);
- a. Three borings immediately north of the former Martin Aaron building north and east of previous boring SB08 (SB152, SB153, SB154);
- b. Three borings east of the former Martin Aaron building east of previous test pit TP05 (SB155, SB156, SB157);

Samples were collected from each completed boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. Two (2) samples per boring were sent to the laboratory and analyzed for TCL Pesticides/PCBs. Upon completion, all borings were grout sealed.

3.3.1.2 Semivolatile Delineation Borings

Ten Semivolatile Delineation borings were advanced, using continuous split spoon sampling methods and Geoprobe® techniques, along the east property border and at off-site locations on the South Jersey Port Property located west of the site across Broadway and north of the Martin Aaron property (Refer to **Appendix A: Boring Logs**). Borings were advanced as follows:

- Four borings along the east property border around previous boring SB23 (SB134, SB135, SB136, SB137);
- Four borings on the South Jersey Port Corporation property around previous boring SB75 located across the street (S. Broadway) and west of the site (SB138, SB139, SB140, SB141);
- Two borings spaced between the north property border and the southern side of Everett Street near previous boring SB88 (SB142, SB143).

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. Two samples per boring were sent to the laboratory and analyzed for TCL Semivolatiles+20. Upon completion, all borings were grout sealed.

3.3.1.3 Rhodes Building Investigation Borings

Sixteen Rhodes Building Investigation borings were advanced, using continuous split spoon sampling methods and Geoprobe® techniques, within the building, adjacent to the building to the east, north and west, along the east and south property borders and at off-site locations southeast of the building along Sixth Street. (Refer to **Appendix A: Boring Logs**). Borings were advanced as follows:

- Eight borings around the perimeter of the former Rhodes building (SB118, SB119, SB120, SB121, SB122, SB123, SB124, SB129);
- Four borings within the former Rhodes building (SB125, SB126, SB127, SB128);
- Two borings along the east property border (SB130, SB131);
- Two borings off-site and southeast of the former Rhodes building along the west side of Sixth Street (SB132, SB133);

Samples were collected from each boring. All samples were screened with a flame-ionization detector (FID) for volatiles and visually inspected for staining. Sampling procedures followed those outlined in the final QAPP for soil sampling. For borings SB118, SB122, SB124, SB126, SB127, SB129, SB130, SB131, SB132, SB133 two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB. For borings SB119, SB120, SB121, SB123, SB125 and SB128, two samples per boring were sent to the laboratory and analyzed for TCL Volatiles+10. Upon completion, all borings were grout sealed.

3.3.1.4 Monitoring Well Borings

Two additional borings were drilled for the purpose of installing monitoring wells in prescribed off-site locations. Shallow borings were performed using continuous split spoon sampling methods advanced by the HSA technique. Deeper borings were advanced using the mud rotary technique. (Refer to **Appendix A: Boring Logs**). Depths of borings were dictated by optimal placement of well screens in ensuing monitoring well installations. Borings were drilled as follows:

- Two borings along the south side of Jackson Street approximately 800 feet southeast of the Martin Aaron Property for the installation of monitoring well cluster MW11 (MW11S and MW11M).

3.3.2 Monitoring Well Installations

Two monitoring wells were installed in the vicinity of the Martin Aaron site, to further evaluate extent and level of potential groundwater contamination, characterize site hydrogeology and validate the possibility of off-site migration of said contamination. Well construction details are provided in **Table 2**. Installations included:

- one monitoring well cluster consisting of two wells southeast of the Martin Aaron site on the south side of Jackson Street identified as MW11S (shallow) and MW11 (intermediate);

3.3.2.1 Shallow Unconsolidated Wells

One shallow unconsolidated well (as described above) was installed off-site and down-gradient to obtain near-surface unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics. The shallow monitoring well was installed and developed as described in Section 3.1.5.1 above (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits and Appendix G: Well Development Records, Permits**).

3.3.2.2 Intermediate Unconsolidated Wells

One intermediate unconsolidated well (as described above) was installed down-gradient of the site to obtain unconsolidated zone physical and hydraulic characteristics plus groundwater quality characteristics immediately above the first confining layer beneath the site. The intermediate monitoring well was installed and developed as described in Section 3.1.5.2 above (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits and Appendix G: Well Development Records**).

3.3.3 Groundwater Level Measurements

Two rounds of groundwater synoptic water level measurements were obtained from both newly constructed monitoring wells and existing monitoring wells (excluding MW3S, MW3M and MW7S which were previously abandoned or removed) installed as part of the first and second investigation phases. Synoptic water level measurements were taken on 1/18/00 during the first groundwater sampling event and 2/17/00 during the second groundwater sampling event (Refer to **Appendix F: Monitoring Well Construction Diagrams, Well Permits** for measurement results). Groundwater level measurements were procured using a decontaminated water level indicator/electronic interface probe. No product interfaces were observed. Water levels were documented in both the field log book and on well sampling logs. (Refer to **Table 3 and Appendix C: Sampling Logs**). Visual representation of the phreatic surface of groundwater for each round of measurement can be found on **Figure 12, Shallow Groundwater Contour Map 1/18/00 and 2/17/00**, and **Figure 13, Deep Groundwater Contour Map 1/18/00 and 2/17/00**.

3.3.4 Monitoring Well Sampling

Two rounds of monitoring well sampling were conducted to further evaluate the groundwater quality characteristics of the site and to assess the possibility of migration of contamination from the site. Sampling procedures were as described in Section 3.1.7 above. Monitoring well samples were sent to the laboratory for analysis of TCL Volatiles+10, TCL Semivolatiles+20, TAL Metals, Cyanide and TCL Pesticides/PCB (Refer to **Appendix C: Sampling Logs**). During the first sampling round (1/18/00 to 1/20/00), two newly installed monitoring wells and eleven existing monitoring wells were sampled (all wells but MW3M, MW3S and MW7S which were abandoned or removed). During the second sampling round (2/17/00), only the two new monitoring wells (MW11S and MW11M) were sampled.

4.0 QUALITY ASSURANCE

4.1 Analytical Methodologies

Soil, water, and sediment samples were analyzed for concentrations of inorganic and organic contaminants using field screening and contract laboratory program procedures. For laboratory analytical procedures, approved EPA/NJDEP methods in combination with standard operating procedures (SOP) for QA/QC were utilized.

Samples collected in the field during the first investigation phase were analyzed by Accredited Laboratories, Inc. of Carteret, NJ and Quanterra Inc. of Knoxville, TN. Samples collected during the second and third investigation phases were analyzed by Ecology and Environment Inc., of Lancaster, NY. **Table 4 - Sample Container, Preservation, Holding Time and Analytical Methodology Requirements** provides a summary by matrix and analytical parameter of the analyses performed, plus containerization requirements, preservation requirements, holding times, and analytical methods.

Full documentation of all handling and analytical procedures and analytical results was included in the laboratory data packages. This information was reviewed by the L. Robert Kimball and Associates project chemist in order to ensure that all procedures were followed.

QA/QC samples were utilized throughout the field operation to ensure the quality and reproducibility of the data. QA/QC field duplicate samples were processed every twenty (20) unique samples per matrix. Additional QA/QC samples were processed if the QA/QC results fell outside the data quality objectives, or if the field chemist determined that additional QA/QC samples were required.

4.2 Sample Management

This section details the general procedures followed during collection, packaging, handling, and shipping of samples. Sample management and quality control was initiated at the laboratory during preparation and packaging of sample containers, continued through field investigation and sample preparation activities, and ended when laboratory analyses are validated and accepted.

4.2.1 Field Sample Management

Sample identification was developed relative to sampling matrix, location, and depth. Results of field screening and analyses were recorded in the field log book. A sample label was prepared for each sample and logged both in the field log book and on the chain of custody form. Sample labels included sample identification number, collection date and time, sample type, analyses desired, preservation type, and sampler identification.

Once sample containers were filled and labeled, the samples were packaged in coolers with ice to maintain the desired temperature of four (4) degrees Celsius. Sample coolers were transported to the laboratory separated from potential sources of contamination of external influences, such as fuels. If sampling was completed in one day, the samples were delivered within twenty-four (24) hours of collection to the laboratory. If sampling continued for more than one day, then the samples were shipped to the laboratory within 48 hours of collection, with total handling time not to exceed sixty hours from time of collection.

The field chain of custody form documented control of sample jars from laboratory to field, and samples from field to laboratory. Internal laboratory records then documented the custody of the sample through its final disposition. All sample containers were traceable from initial preparation at the laboratory, through field use, and to final disposal as follows:

1. The field sampler accepted the sample containers from the laboratory, and monitored the care and custody of the environmental samples until custody was properly transferred.
2. Sampling information was entered on the chain of custody form immediately after sample labeling.
3. A separate chain-of-custody form was completed for each shipment. Shipping containers were sealed any time the container was not in the control of the person assigned for custody as designated and documented on the chain-of- custody form.
4. The person relinquishing samples requested the signature of a representative of the party receiving custody of the samples. If a representative was unavailable or refused to sign, the circumstances, location, and time were noted in the "Received by" space and the "Remarks" space of the chain-of-custody form.

4.2.1.1 Sample Preservation

Sample preservation was dependent upon the analytical program specified for each sample. Preservation methodologies were followed as outlined in Table 3. These procedures conformed to those given in Technical Additions to Methods for Chemical Analysis of Water and Wastes, EPA-600/4-82-005 and the NJDEP Field Sampling Procedures Manual, May 1992.

Preservatives were added to the sample bottles by the laboratory prior to shipment to the field. Following collection, samples were maintained at 4°C until analyzed by the contract laboratory.

4.2.1.2 Sample Storage

Sampling and blanks, both in the field and laboratory, were stored in a refrigerated (at 4 degrees Celsius), secure area until required analyses were completed. Field and laboratory storage were the responsibility of the Field Sampling Supervisor and Laboratory Manager, respectively. In general, samples will not be retained longer than six months beyond the completion of analysis, unless otherwise specified.

4.2.1.3 Sample Holding/Handling Times

Sample control was strictly maintained from sample acquisitions through analysis in order to assure that the sample was representative. Maximum holding/handling time requirements are shown in Table 4.

4.2.1.4 Field Sample Custody

The following procedures were enforced to ensure that control of each sample was maintained from collection, during analysis, and through data reduction. The field chain-of-custody form documented

control of sample jars from laboratory to field, and of samples from field to laboratory. Internal laboratory records then documented the custody of the sample through its final disposition.

Sample Identification:

Field measurements were recorded directly in the Field Logbook, along with identifying information (project code, station numbers, station location, date, time, samplers), field observations, and remarks. Examples of field measurements included pH, temperature, conductivity, water levels, and FID readings.

Soil and water samples were labeled, packaged and transported from the sample location to the laboratory. The sample label included: sampling location, collection date and time, type of analyses required and preservation notes. The sample label also identified the sample as a grab or a composite sample and identified the sample matrix (water or soil).

Field Chain of Custody Procedures:

All samples were traceable from the time the samples were collected until they or their derived data were incorporated into the final report. In order to maintain and document sample possession, the following chain-of-custody procedures were used.

- a) Samples were collected as described in the project QAPP.
- b) The field sampling supervisor was personally responsible for the care and custody of the samples collected until they were properly transferred or dispatched.
- c) During sampling, field blank samples were prepared, as established in the Plan and as appropriate (with and without preservatives).
- d) Logbook pages and other records were signed and dated.
- e) When photographs were taken of the sampling as part of the documentation procedure, the name of the photographer, date, time, site location and site description were entered sequentially in the Logbook as photos were taken. Once developed the photographic prints were serially numbered corresponding to the Logbook descriptions.
- f) Sample labels were completed using waterproof ink unless prohibited by weather conditions, e.g., a logbook notation would explain that a pencil was used to fill out the sample label because a ballpoint pen would not function in freezing weather.
- g) The Site Manager determined whether proper custody procedures were followed during the field work and decided if additional samples were required.
- h) Samples were accompanied by a Chain-of-Custody Record. When transferring the possession of samples, the relinquishing and receiving individuals signed, dated, and noted the item on the Record. This Record documented sample custody transfer from the sampler, often through another person, to the analyst in the laboratory.

- i) Samples were packaged properly for shipment, dispatched to the appropriate laboratory for analysis, and accompanied by a separate custody record for each shipment. Shipping containers were sealed for shipment to the laboratory. The method of shipment, courier name(s), and other pertinent information were entered in the "Remarks" section on the custody record.
- j) All shipments were accompanied by Chain-of-Custody Records which identified their contents. An original Record accompanied each shipment, and a copy was retained by the Sampling Supervisor.
- k) If sent by mail, the package was registered with return receipt requested. If sent by common carrier, proper documentation was maintained.

4.2.2 Laboratory Sample Management

A designated sample custodian accepted custody of the shipped samples and verified that the information on the sample labels matched that on the Chain-of-Custody Records. Pertinent information concerning shipment, pickup, courier, etc., was entered in the "Remarks" section. The custodian then entered the sample label information into a bound logbook which was arranged by project code and station number.

The laboratory custodian used the sample label number or assigned a unique laboratory number to each sample label. All samples were transferred to the proper analyst or stored in an appropriate secure area.

4.2.3 Field Documentation

During installation procedures, a detailed record of drilling and sampling operations and geological material was maintained in accordance with the project QAPP. These procedures were obtained from the USEPA Compendium of Methods. All entries were legible, initialed and dated.

4.3 Equipment Decontamination

All equipment used for sample collection was properly decontaminated before use to prevent cross-contamination from prior sampling locations. Sample containers used for sample packaging were provided by the laboratory performing the analysis. Field monitoring equipment was wiped with a clean disposable wipe and rinsed with distilled/deionized water. All sampling equipment was cleaned, marked, and wrapped in foil prior to delivery to the field and between uses. Where possible, dedicated sampling equipment was utilized.

4.3.1 Soil Sampling Equipment Decontamination

Field sampling equipment employed to collect or hold non-aqueous samples was decontaminated prior to use as follows:

1. Visible contamination was removed from the equipment using a brush and/or paper towel saturated with potable water and laboratory grade soap.
2. The equipment was rinsed with potable water to remove residual soap and solids.
3. The final equipment rinse was performed with distilled/deionized water.

If the above procedures failed to remove all visible contamination or if gross contamination was suspected at the sampling location, then the equipment was further decontaminated as follows:

4. If metals were to be analyzed, the equipment was rinsed with a 10% nitric acid solution (1% solution for carbon steel equipment to prevent leaching of metals).
5. The equipment was rinsed with distilled/deionized water.
6. If the sample was to be analyzed for organic contaminants, the equipment was rinsed with laboratory grade acetone or methanol, and then air dried.
7. The equipment was rinsed with distilled/deionized water.
8. The equipment was protected from new contamination by wrapping in aluminum foil or it was stored in a polyethylene bag.
9. Decontamination methodology, date, time, and responsible personnel were recorded in the field log book.

4.3.2 Water Sampling Equipment Decontamination

All water sampling equipment was properly decontaminated before each use. For each day of sampling, field sampling equipment was dedicated to a particular sampling point. The field sampling equipment was decontaminated prior to use in the field and between uses as follows:

1. Visible contamination was removed from the equipment using a brush and/or paper towel saturated with potable water and laboratory grade soap.
2. The equipment was rinsed with potable water to remove residual soap and solids.
3. The second equipment rinse was performed with distilled/deionized water.
4. If metals were to be analyzed, the equipment was rinsed with a 10% nitric acid solution (1% solution for carbon steel equipment to prevent leaching of metals).
5. The equipment was rinsed with distilled/deionized water.
6. If the sample was to be analyzed for organic contaminants, the equipment was rinsed with laboratory grade acetone or methanol, and allowed to air dry or cleaned with nitrogen.
7. The equipment was rinsed with distilled/deionized water.
8. The equipment was protected from new contamination by wrapping in aluminum foil or storing in a polyethylene bag. The equipment was labeled or tagged with a number and date and time of cleaning.
9. Decontamination methodology, equipment number, date, time, and responsible personnel were documented in the field log book.

Decontamination liquids and solids were collected in a plastic lined decon pad.

4.3.3 Well Purging Equipment Decontamination

Centrifugal pumps used for well evacuation prior to well sampling were field decontaminated prior to and between each use. New polyethylene (ASTM Grade) tubing was used for each well and did not require decontamination. The new tubing was rinsed/wiped with distilled/deionized water prior to placement in the well. Submersible pumps were decontaminated as follows:

1. Visible contamination was removed from the pump casing and electrical leads using a

- brush and/or paper towel saturated with potable water and laboratory grade soap.
2. The equipment was rinsed with potable water.
3. The pump was flushed with a minimum of 20 gallons of potable water by submerging the pump in a plastic container filled with potable water.
4. The pump casing and electrical leads were again rinsed with distilled/deionized water.
5. The equipment was stored on clear polyethylene sheeting to prevent recontamination.
6. Decontamination methodology, equipment, date, time and responsible personnel were documented in the field log book.

Decontamination liquids/solids were collected in a plastic lined decon pad.

4.3.4 Heavy Equipment Decontamination

Heavy equipment (excavator/drill rigs) were steam cleaned prior to arrival on-site. Cleaning was also done between drilling/excavation locations using the first two steps of the decontamination procedure in Section 4.3.1. Items which required decontamination between locations included the backhoe bucket, extension arm, tracks, drill auger flights, drill rods and drill bits.

4.4 Laboratory Data Deliverables

This section describes the deliverables and procedures employed in evaluating, reporting, and using the results of environmental sample analyses and quality assurance program analyses. NJDEP standard formats were used for all data deliverables.

4.4.1 Analytical Report Deliverables

Analytical results, quality assurance data, and raw data were provided in NJDEP approved format noted in Appendix A of the Proposed Technical Requirements for Site Remediation NJAC 7:26E. Analytical data packages were provided as Full Laboratory Data Deliverables - USEPA/CLP method for all analysis except Methods 524.2 and 508. Full Laboratory Data Deliverables -Non USEPA/CLP Methods were provided for samples analyzed by Methods 524.2 and 508.

4.4.2 Data Reduction and Reporting

NJDEP is currently in the process of reviewing data packages, validating the laboratory compliance with standard operating procedures and project plans, and providing summaries of environmental and QA results in their report of findings.

4.4.2.1 Data Validation

4.4.2.1.1 First Investigation Phase (May 1997 to September 1997)

Data validation has been completed for all data collected and analyzed from the first investigation phase. Results reported in the following sections have been edited to reflect validation comments, qualifiers, and corrections. The following presents a summary of validation results:

- Results of data validation of data collected during the first investigation phase indicate that all (100 percent) semivolatile results including soil, groundwater, sediment and associated blanks have been rejected and deemed unusable due to improper initial calibrations during analysis. Results presented in the following sections only contain semivolatile results from the second and third investigation phases. Where applicable, semivolatile results from the first investigation phase have been flagged with an "R" qualifier and the result omitted.
- Eight soil samples submitted for analysis of TCL volatiles +10 have been rejected and deemed unusable (SB01-2, SB01-4, SB07-2, SB07-3, SB29-2, SB29-3, SB48-2, and SB60-1) due to a rejected continuing calibration (% D exceeded the limit of 40%) and internal standard areas below limits without associated re-analysis.
- Results of data validation of groundwater data collected during the first investigation phase indicate that all (100 percent) metals results from the first sampling round including associated blanks have been rejected and deemed unusable due to expired Linear Range Analysis determinations and expired Detection Limit determinations.
- Two samples submitted for volatile organics (USEPA 524.2) and one sample submitted for pesticides/PCB have been rejected for holding time exceedances and retention time exceedances, respectively.
- For data collected during the second round of groundwater sampling, four samples submitted for volatile organic analysis were rejected due to a rejected continuing calibration. One sample submitted for pesticide/PCB analysis was rejected for retention time exceedances.
- Several other analytes and compounds were qualified, negated, and/or rejected based on a variety of quality assurance issues. Results presented in the remaining sections of this report have been corrected based on validation results. All validation results can be found in reports completed by Environmental Quality Associates, Inc., Quality Specialists and Environmental Analysts, Inc., and the NJDEP.

4.4.2.1.2 Second Investigation Phase (September 1998 to November 1998)

Data validation has been completed for all data collected and analyzed from the second investigation phase. Results reported in the following sections have been edited to reflect validation comments, qualifiers, and corrections. The following presents a summary of validation results:

- Several analytes and compounds were qualified, negated, and/or rejected based on a variety of quality assurance issues. Results presented in the remaining sections of this report have been corrected based on validation results. All validation results can be found in reports completed by Environmental Quality Associates, Inc., Quality Specialists and Environmental Analysts, Inc., and the NJDEP.

4.4.2.1.3 Third Investigation Phase (December 1999 to March 2000)

As of the date of this report, NJDEP data validation has not been complete for this investigation phase. Reported concentrations, findings and conclusions reach in this report must therefore be regarded as qualitative until the validation process is complete.

4.4.2.2 Data Reduction

As part of the data validation process, the analytical results were reduced to include only positive results. These data tables included all qualifier codes and were cross-checked against the analytical results by an individual other than the author to ensure accuracy. In addition to positive results and qualifier codes, the data tables included sampling location and date and laboratory identification numbers. Data were presented according to matrix type (i.e., soil and sediments, groundwater and surface water, etc.).

4.4.2.3 Reporting

Data generated in the field was logged into the field log book, saved on field data loggers where appropriate, and noted on field logs. The field log book will be kept in project files as a hard copy documentation of field conditions, observations, and findings. Sampling and drill logs were prepared to present field data and are included in this report.

5.0 FINDINGS

The following sections describe findings of each of the three investigation phases for the Martin Aaron Site. Detailed findings for the Remedial Investigation are presented in the following appendices:

- Appendix A - Boring Logs
- Appendix B - Geotechnical Testing Results
- Appendix C - Sampling Logs
- Appendix D - Building Safety Inspection Report
- Appendix E - Test Pit Logs and Photos
- Appendix F - Monitoring Well Construction Diagrams, Well Permits
- Appendix G - Well Development Records
- Appendix H - Geophysical Data

5.1 Remedial Investigation Activities

5.1.1 Structural Stability Monitoring

Qualified Kimball personnel performed a detailed examination of potential overhead hazards (pipes, debris, etc.) including visual inspection of the entire area and destructive/qualitative testing of supporting beams and joists. Buffer zones encompassing areas directly below overhead hazards, as well as interpreted potential trajectory paths of falling objects, were subsequently cordoned off and avoided. Fifteen Avanguard Calibrated Crack, Slope and Movement Monitors, were installed at predetermined locations to monitor the behavior of the structure during investigative activities. These devices were visually monitored periodically throughout the entire term of interior investigative activities. Said visual monitoring evidenced that investigative activities did not contribute to the degradation of structural integrity of the Martin Aaron building. The activities were executed without incident.

5.1.2 Geophysical Survey Results

A ten feet by five feet survey grid, used for both the magnetic and EM surveys, was constructed over the survey area. East and west grid perimeters were marked at the profile interval (10 feet) using either wood stakes or marking paint depending on surface conditions. Each stake was labeled with the appropriate profile number. Profile numbers were assigned starting in the northwest corner of the grid with 1001, increasing southward by one. Two perpendicular baselines were constructed parallel to and at the approximate midpoint between the east and west grid perimeters. The baselines were marked at ten foot intervals across the site. Profiles were established by stretching a rope/tape, marked at the station interval (5 feet), perpendicular to and between two corresponding perimeter stakes. Station numbers were assigned starting along the west grid perimeter with 101, increasing to the east by one. (Refer to **Figure 14 - Geophysical Survey Area**).

Magnetic Survey

A Total of eleven primary magnetic anomalies thought to represent buried metal objects were identified. **Figure 15, Magnetic Total Field Contour Map**, presents the location of each magnetic anomaly identified as M1 through M11. In addition, five secondary anomalous areas were identified. Secondary locations were selected based on proximity to primary anomalies and their probability of representing buried metal. Secondary locations are not identified but were considered during investigations.

Each of the eleven primary magnetic anomalies is described below:

- M1- Approximately 35 x 40 feet located in the northeast corner of the site. Anomaly is located in area previously excavated by the Department of Justice. Large amplitude magnetic anomaly indicating large mass of ferrous metal.
- M2- Approximately 25 x 40 feet also located in the northeast corner of the site. Similar to M1 in amplitude. Magnetic gradient data indicate this anomaly may represent a distinct burial separate from anomaly M1.
- M3 - Approximately 75 x 25 feet located between the Martin Aaron and Rhodes buildings. Anomaly is located in area previously excavated by the Department of Justice. Consists of two (2) large amplitude magnetic lows. Secondary anomaly located to the north. Secondary location is very close to the former waste storage concrete pad and should be investigated if drums found at anomaly M3.
- M4 - Approximately 75 x 45 feet located east of the Rhodes building. Anomaly consists of many large amplitude magnetic highs and lows. Some of the anomaly may be due to the building and the perimeter fence. Previous reports of drum burial activities identify this area as a possible location.
- M5 - Approximately 35 x 15 feet located against the east wall of the Martin Aaron building. Some surface metal in this area. Previous inspections by the NJDEP noted this area as possibly being a "fresh" excavation with little vegetation and disturbed surface soil.
- M6 - Approximately 45 x 40 feet located immediately north of the Rhodes building. Characterized by very large amplitude magnetic low and several medium amplitude magnetic highs. Secondary locations identified to the west and south east of anomaly M6. These areas should be investigated if M6 is found to contain drums.
- M7 - Approximately 20 x 15 feet located northwest of M6. Medium amplitude magnetic dipole located in surface depression. May indicate previous excavation activity.
- M8 - Approximately 25 x 20 feet located near the center of the site. Also within surface depression. Consists of a large amplitude magnetic low.
- M9 - Approximately 25 x 30 feet located near the northwest corner of the site. Similar to M6 but a bit smaller. Located in a slight surface depression characterized by a very large amplitude magnetic low.
- M10- Approximately 35 x 30 located north of the Martin Aaron building. Very similar to M9 and M6 in amplitude. Located under existing concrete surface which probably makes this location unlikely for previous drum burial.
- M11- Similar to anomaly M8 located near the center of the site. Secondary to M8. To be excavated if drums found at M8.

Electromagnetic Survey

A total of ten primary electromagnetic anomalies thought to represent buried metal objects and or disposal pits/trenches were identified. **Figure 16, Conductivity Contour Map**, presents the location of each electromagnetic anomaly identified as EM1 through EM10..

Each of the ten primary electromagnetic anomalies is described below:

- EM1, EM2, EM3 - Located near the center of the site thought to represent possible burial trenches. Each anomaly is approximately 60 x 15 feet oriented north- south. Similar sizes and parallel orientation may indicate trench excavation. No magnetic anomalies observed in these locations indicating the absence of significant buried ferrous metal.
- EM4 - Approximately 180 x 15 feet located in the eastern portion of the site. Anomaly is oriented north-south extending from the front of the Rhodes building to the northern fence. Similar in appearance to anomalies EM1, EM2, and EM3. Long linear length may indicate buried utility. Possibly former drainage to the former surface ditch along the north property border.
- EM5, EM6 - Approximately 60 x 15 feet each oriented north south and located north of the Rhodes building near EM4. Very similar in appearance to EM1 through EM3. No corresponding Magnetic anomaly may indicate the absence of significant ferrous metal (steel drums). If investigations of anomalies EM1 through EM3 find buried waste, this anomaly should be investigated.
- EM7- Approximately 35 x 40 feet located east of the Rhodes building. Corresponds with magnetic anomaly M4 described above. Possible buried metal (drums).
- EM8, EM9- Located between the Martin Aaron and Rhodes buildings. Correspond with magnetic anomaly M3 and secondary magnetic anomaly north of M3. Possible buried metal. In area of previous test pits conducted by the Department of Justice.
- EM10- Approximately 20 x 20 located north of the Martin Aaron building and overlapping magnetic anomaly M10. Located under existing concrete which probably makes this location unlikely for previous drum burial.

Ground Penetrating Radar Survey

Ground Penetrating radar data were collected over the majority of geophysical anomalies interpreted from the magnetic and electromagnetic data. In addition, GPR was used to evaluate the location of underground storage tanks north and east of the former Martin Aaron building.

In general, GPR was found to be ineffective in delineating the horizontal extent of subsurface objects thought to represent the cause of observed anomalies. Reasons for failure of the GPR method include the very high conductivity of the site soil as observed in the electromagnetic data. Radar penetration depth is very limited in high soil conductivities. Also, the existence of construction debris, rubble, and other subsurface structures throughout the site limits the ability to interpret the extent of possible burial areas. Interpretations are generally qualitative in nature using visual interpretation of the reflected

signal. If the entire subsurface returns reflections characteristic of burial pits or buried debris, delineations of the target objects cannot be made.

For specific data and visual representation of the geophysical survey results refer to **Appendix H - Geophysical Data** and **Figure 17, Geophysical Survey Composite Results**.

5.1.3 Building Interior Soil Borings

Seventeen interior (Former Martin Aaron Main Complex) soil borings were drilled (or attempted), via split spoon advanced by Geoprobe®, from June 16, 1997 to June 19, 1997, by James C. Anderson Associates, Inc. of Mt. Laurel, New Jersey (JCA). Successful borings encountered groundwater at six to ten feet below grade. Flame-ionization detector (FID) screening detected volatile organics in all borings except SB39 and SB41. Volatiles were detected in a range from the surface to fourteen feet below grade.

On October 8, 1998, an additional six interior (Former Martin Aaron Main Complex) soil borings were drilled via split spoon advanced by electric jackhammer by JCA. Three borings were advanced within the former one story brick structure west of the processing areas of the building and three borings were advanced within the former three story warehouse portion of the building (Re-sampling borings). FID screening detected volatile organics in all borings to approximately eight feet below grade. Borings within the former one story brick structure encountered cinders and other combustion by-products to depths of at least six feet below grade. Borings within the former three-story warehouse encountered similar material as was found during the initial investigation phase. (Refer to **Appendix A: Boring Logs**).

No building interior (Martin Aaron Main Building Complex) soil borings were advanced during the third investigation phase.

5.1.4 Exterior Soil Borings

Twenty exterior soil borings were drilled, via split spoon advanced by a combination of mud rotary and HSA techniques, from June 24, 1997 to July 18, 1997, by JCA. Borings encountered groundwater at five to 7.5 feet below grade. All borings, with the exception of SB07, SB11 and SB17, contained what were classified as cinders and/or a slag-type material. A strong product (fuel) odor was associated with borings SB03, SB05, SB07, SB12, SB17 and SB19. FID screening detected volatile organics (VOC) in all borings except SB13. Significant levels of VOCs were detected in a range from the surface to nineteen feet below grade. (Refer to **Appendix A: Boring Logs**).

Between September 29, 1998 and October 8, 1998, an additional fifty-four exterior soil borings and eleven re-sampling soil borings were drilled via split spoon advanced by Geoprobe® by JCA. Exterior borings completed on the South Jersey Port Corp. property (SB63 to SB79) encountered groundwater at depths ranging from six to twelve feet below grade, with the deeper groundwater observed in the borings located in the west and southwestern portions of the property (SB64, SB65, SB66, SB71, and SB72). Cinders and/or slag-type material were again reported in the majority of the South Jersey Port Corp. property borings. Soil borings completed around the site perimeter (SB80 to SB99 and SB105 to SB109) encountered groundwater at depths ranging from five to nine feet below grade with the deeper groundwater identified in areas south and southeast of the Martin Aaron property. All borings encountered some degree of cinders/slag type material with only limited amounts reported in borings

located along South Broadway (SB81 to SB84). The remaining borings advanced within the yard area of the Martin Aaron property encountered similar subsurface conditions as found during the initial investigation phase (Refer to **Appendix A: Boring Logs**).

Exterior soil borings advanced during the third investigation phase are described in Sections 5.1.6 and 5.1.7 below.

5.1.5 UST Soil Borings

Thirteen UST soil borings were drilled, via split spoon advanced by HSA, from July 21, 1997 to July 23, 1997, by JCA. Borings encountered groundwater at six to eight feet below grade. All borings evidenced black staining (oily sheen) and a product (fuel) odor. FID screening detected VOCs in all borings in a range from the surface to sixteen feet below grade (maximum depth advanced). No additional UST borings were advanced during the second or third investigation phases. (Refer to **Appendix A: Boring Logs**).

5.1.6 Delineation Soil Borings

Between December 1, 2000 and December 9, 2000, twenty-four delineation borings (pesticide/PCB and semivolatile) were advanced via split spoon sampling and Geoprobe® techniques by JCA. Delineation borings were advanced within close proximity to previous borings advanced during the first and second investigation phases. All borings encountered similar subsurface conditions as found during the first and second investigation phases.

5.1.7 Rhodes Building Delineation Borings

Between December 1, 2000 and December 9, 2000, sixteen Rhodes Building Delineation borings were advanced via split spoon sampling and Geoprobe® techniques by JCA. Delineation borings were advanced around the perimeter of and beneath the former Rhodes building. Borings within the Rhodes building (SB125 to SB128) encountered approximately four feet of void space beneath a double concrete slab floor (two 4-inch slabs separated by a few inches of void space). Beneath the void space, borings generally encountered two to four feet of fill (cinders and slag) underlain by silt, silty sand and clayey silt. Groundwater was generally encountered between nine and twelve feet below the concrete floor. FID/PID screening detected volatile organics (VOC) in all borings.

The remaining borings were advanced around the building perimeter (SB118 to SB124 and SB129), along the east property border (SB130 and SB131), and at off-site locations southeast of the former Rhodes building (SB132 and SB133). All borings encountered similar subsurface conditions as found during the first and second investigation phases. On-site borings encountered fill material consisting of cinders, slag, brick, and other debris extending six to ten feet below the ground surface. FID/PID screening detected volatile organics (VOC) in all borings except off-site borings SB131 and SB132. A product (fuel) odor was associated with borings SB120, SB121, and SB129.

5.1.8 Monitoring Well Borings

Seven monitoring well borings were drilled, via split spoon advanced by a combination of mud rotary and HSA techniques, from June 25, 1997 to July 8, 1997, by JCA. Borings encountered groundwater at 5.5 to ten feet below grade. All borings, with the exception of SB30, contained what were classified as

cinders and/or a slag-type material. A product (fuel) odor was associated with borings SB22, SB23 and SB24. FID screening detected VOCs in all borings except SB20 and SB26. Significant levels of VOCs were detected in a range from the surface to thirty seven feet below grade. (Refer to **Appendix A: Boring Logs**).

Between October 12, 1998 and October 16, 1998, an additional seven monitoring well borings were drilled by JCA via a combination of HSA and mud rotary techniques. Borings encountered groundwater between six and eighteen feet below grade with the deeper groundwater observed east and southeast of the Martin Aaron Property (MW10S and MW9S (SB116)). FID screening detected VOCs in all borings with significant levels encountered in boring MW7S (SB113). A strong product (fuel) odor was reported while advancing MW7S.

Between December 27, 1999 and December 29, 1999, an additional two monitoring well borings were drilled by JCA via a combination of HSA and mud rotary techniques. Borings encountered groundwater at sixteen feet below grade. FID/PID screening did not detect VOCs in the borings.

5.1.9 Test Trenches/Pits

Twenty four test pits (including four multi-pit excavations) and two sewer basin excavations were dug, via a track-excavator, from August 4, 1997 to August 13, 1997, by Kimball. A few test pits encountered groundwater at five ½ (5.5) to ten (10) feet below grade. Most test pits contained fill material comprised mainly of ashes, cinders, sand and construction debris (pieces of brick and concrete). TP12, TP13, TP14, TP15, TP16, TP17, TP18, TP19, TP20, TP22, TP23 and TP24 also contained a metallic slag-type material. TP04 contained orange sand and large pieces of concrete and brick. TP05 contained black stained sand, large pieces of concrete and purple stained soil. Drum lids, bungs and pieces of crushed drums were observed just below the surface at test pits TP09, TP13, TP17, TP18 and TP21. Drum liners were observed in test pits TP11, TP21 and TP23. A cache of an unidentified white powder was observed in test pit TP21 at a level of 3.5-5' below the ground surface. Various articles of personal protective equipment (PPE), such as rubber boots and gloves, were observed in test pits TP08 and TP11. FID screening detected VOCs in all test pits/trenches except TP04, TP05, TP15 and TP20. Significant levels of VOCs were detected in a range from the surface to six feet below grade (maximum excavation depth). (Refer to **Appendix E: Test Pit Logs**). Test pits were not excavated during the second and third investigation phases.

5.1.10 Monitor Well Sampling

During the first investigation phase, monitor well sampling was conducted from August 14, 1997 to August 15, 1997 (Event #1) and again on September 15, 1997 (Event #2), by Kimball. Both events included the sampling of the newly install monitoring wells and the Camden City Well #7. During both events, all wells (with the exception of the City Well) were checked with an interface probe for presence of product, none of which yielded positive results. However, a strong product odor and discoloration was noted in both MW-2S and MW-2M. While purging of the monitoring wells during event #1, the following parameters were checked: temperature; specific conductivity; % dissolved oxygen; and pH. The range of results for wells checked during Event #1 are as follows:

Monitoring Well	Temperature (°C)	Specific Conductivity (us)	Dissolved Oxygen (%)	PH
MW-1S	19.53	----	14.4	7.47
MW-1M	16.68	----	18.3	6.76
MW-2M	17.03	----	21.3	6.67
MW-3S	17.04	----	29.2	6.99
MW-3M	15.78	----	32.7	6.68
MW-4S	21.25	----	24.4	6.66

The results for wells checked during Event #2 are as follows:

Monitoring Well	Temperature (°C)	Specific Conductivity (us)	Dissolved Oxygen (%)	PH
MW-1S	19.80	----	9.0	7.15
MW-1M	16.40	----	31.2	7.06
MW-3S	18.01	----	40.6	6.87
MW-3M	16.53	----	71.3	6.76
MW-4S	20.11	----	77.8	6.85

(Refer to **Appendix C: Sampling Logs**). Due to the delicate nature of the analytical device utilized in collecting the above-mentioned data, Kimball believed it inadvisable to immerse it in the odorous and discolored purge water from MW-2S (Events 1 & 2) and MW-2M (Event 2), thus, no data was recorded or is presented. In addition, specific conductance was not recorded due to a malfunction of the recording equipment.

During the second investigation phase, monitor well sampling was conducted from November 10 1998 to November 11, 1998, by Kimball. The second investigation phase groundwater sampling included the sampling of the seven (7) existing monitoring wells installed as part of the first investigation phase, and the seven (7) new monitoring wells installed during the second investigation phase. All wells were checked with an interface probe for presence of product, none of which yielded positive results. However, a strong product odor and discoloration was noted in monitoring wells MW-2S, MW-2M, and MW7S. While purging of the monitoring wells the following parameters were checked: temperature; specific conductivity; % dissolved oxygen; and pH. The range of results are as follows:

Monitoring Well	Temperature (°C)	Specific Conductivity (us)	Dissolved Oxygen (%)	PH
MW-1S	17.22	4650	26.8	8.10
MW-1M	15.83	1451	48.9	7.71
MW-2M	15.78	1430	17.17	7.28
MW-3S	16.35	1088	9.4	7.39
MW-3M	14.82	1242	9.9	6.45
MW-4S	17.16	1213	26.2	7.09
MW-5S	19.60	4052	15.9	8.15
MW-6S	16.51	2810	14.0	7.48
MW-7S	15.73	1368	18.6	7.78
MW-8S	17.30	2556	27.2	6.95
MW-9S	16.41	1491	17.7	6.83
MW-9D	15.86	1377	8.2	6.81
MW-10S	21.41	1657	18.7	7.40

During the third investigation phase, monitor well sampling was conducted from January 18, 2000 to January 19, 2000 (Event #1) and again on February 17, 2000 (Event #2), by Kimball. The first event included the sampling of the remaining wells installed during the first two investigation phases and the two new monitoring wells installed as part of the third investigation phase. During both events, each well was checked with an interface probe for presence of product, none of which yielded positive results. However, a strong product odor and discoloration was noted in both MW-2S and MW-2M. While purging of the monitoring wells during event #1, the following parameters were checked: temperature; specific conductivity; % dissolved oxygen; and pH. The range of results for wells checked during Event #1 are as follows:

Monitoring Well	Temperature (°C)	Specific Conductivity (us)	Dissolved Oxygen (%)	PH
MW-1S	15.57	2474	19.44	7.16
MW-1M	15.37	932	47.4	6.19
MW-2M	15.55	1050	39.2	6.17
MW-5S	15.70	3368	34.81	7.54
MW-6S	14.70	3124	20.74	6.88
MW-8S	15.73	1365	23.71	6.48
MW-9S	15.27	1326	11.99	7.00
MW-9D	15.34	1616	14.03	7.18
MW-10S	16.33	1755	10.47	7.44
MW-11S	14.49	1484	19.72	7.30
MW-11M	14.52	2110	7.74	7.10

The results for wells checked during Event #2 are as follows:

Monitoring Well	Temperature (°C)	Specific Conductivity (us)	Dissolved Oxygen (%)	PH
MW-11S	15.32	1575	15.53	7.15
MW-11M	15.50	2432	11.73	7.06

5.1.11 Hydropunch® Sampling

Twelve groundwater screening samples were collected, via a Hydropunch® II sampler, from July 9, 1997 to July 17, 1997, by JCA / Kimball. No notable discoloration or odor were observed during sampling. Refer to **Appendix A: Boring Logs** for locations and depths of Hydropunch® samples. No Hydropunch sampling was conducted during the second and third investigation phases.

5.1.12 Sediment Sampling

Two sediment samples were collected, via stainless steel/HDPE dredging device, on August 14, 1997, by Kimball. Both samples emitted a strong odor (reminiscent of paint sludge or solvents) and produced a noticeable sheen (Refer to **Appendix C: Sampling Logs**). No sediment sampling was conducted during the second and third investigation phases.

5.2 Remedial Investigation Analytical Results

The following sub-sections describe sampling results based on sample matrix, media disposition and analytical parameters. Results discussed are positive concentrations observed from each type of sample. The attached tables show positive analytical results only. **Table 5 – Analysis Qualifiers**, presents an explanation of data qualifiers and shading used on the ensuing result tables and qualifiers used on the result figures.

As of the date of this report, NJDEP validation of the analytical data submitted for the third investigation phase has not been completed. For reporting purposes, all data are assumed to be valid. The data, results, and conclusions should be considered as qualitative at this time.

5.2.1 Soil and Sediment Samples

5.2.1.1 Surface Soil Samples

5.2.1.1.1 Volatiles

Analytical results from surface soil samples (0-2' depth) report positive concentrations of twenty seven volatile parameters. Twelve of these parameters were measured at concentrations exceeding NJDEP's Impact to Groundwater Soil Cleanup Criteria (IGWSCC). The most common compounds detected at concentrations in excess of the IGWSCC include 1,2-dichloroethene (16 samples), tetrachloroethene (PCE) (30 samples), and trichloroethene (TCE) (21 samples). Other compounds detected at

concentrations above the IGWSCC but at a lesser frequency include 1,1-dichloroethane (1 sample), 1,2-dichloroethane (1 sample), benzene (4 samples), chlorobenzene (3 samples), chloroform (4 samples), cis-1,2-dichloroethene (2 samples), methylene chloride (7 samples), toluene (1 sample), and xylene (total) (7 samples). 1,2-Dichloroethene (total) concentrations range from below detection limit to a maximum of 180 mg/kg in sample SB05-2. PCE concentrations range from below method detection limit to a maximum of 2400 mg/kg in sample SB05-2. TCE concentrations range from below method detection limit to a maximum of 1800 mg/kg in sample SB31-2. Maximum concentrations for the remaining compounds detected in excess of the IGWSCC are as follows: 1,1-dichloroethane (98 mg/kg, SB31-2), 1,2-dichloroethane (4.2 mg/kg, SB31-2 sample), benzene (19 mg/kg, SB54-1), chlorobenzene (21 mg/kg, SB05-2), chloroform (14 mg/kg, SB129A2), cis-1,2-dichloroethene (7.1 mg/kg, SB120-1), methylene chloride (18 mg/kg, SB33-2), toluene (1800 mg/kg, SB31-2), and xylene (total) (190 mg/kg, SB08-2)

Of the twenty-seven parameters with reported positive concentrations, six were detected at concentrations in excess of the NJDEP Residential Direct Contact Soil Cleanup Criteria (RDCSCC) (1,2-dichloroethene (total), benzene, tetrachloroethene, toluene, trichloroethene, and vinyl chloride) and four (4) were detected above the NJDEP Non-Residential Direct Contact Soil Cleanup Criteria (NRDCSCC) (benzene, tetrachloroethene, toluene, and trichloroethene). Results indicate twenty-one samples contain one or more compounds at concentrations above the RDCSCC and seventeen samples, collected from borings located mainly within and near the processing areas of the former Martin Aaron building, contain one or more compounds at concentrations above the NRDCSCC. The most common compound detected at concentrations above the RDCSCC and/or NRDCSCC was tetrachloroethene which exceeded both criteria in each of the seventeen samples.

Total volatile concentrations ranged from less than 2 mg/kg in sample SB15-2 to 4567 mg/kg in sample SB31-2. Three samples exceeded the NJDEP criteria for total volatiles (1,000 mg/kg). Total volatile concentrations in excess of the NJDEP criteria (1,000 mg/kg) were detected in samples SB05-2 (3421 mg/kg), SB31-2 (4567 mg/kg), and SB33-2 (1630 mg/kg) collected from borings located within and near the processing areas of the former Martin Aaron building.

A complete listing of volatile positive analytical results, including results above NJDEP soil cleanup criteria, can be found in **Table 6 - Surface Soil Samples - Positive Analytical Results - Volatiles**. Results are also shown on **Figure 18, Soil Results Above Criteria - Volatiles**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the NJDEP soil cleanup criteria.

5.2.1.1.2 Semi-Volatiles

Analytical results from surface soil samples (0-2' depth) report positive concentrations of thirty eight semi-volatile parameters. Seven of these parameters were measured at concentrations exceeding one or more of the three NJDEP soil cleanup criteria (IGWSCC, RDCSCC, NRDCSCC). One compound (benzo(b)fluoranthene) was measured at concentrations in excess of the IGWSCC. Sample SB88-1 contained benzo(b)fluoranthene at a concentration of 82 mg/kg which exceeds the IGWSCC of 50 mg/kg.

Of the thirty eight compounds with reported positive concentrations, seven were detected at concentrations above the RDCSCC. The most common compounds detected above the RDCSCC include benzo(a)anthracene (46 samples), benzo(a)pyrene (56 samples), benzo(b)fluoranthene (48

samples) and benzo(k)fluoranthene (46 samples). Other compounds detected at concentrations above the RDCSCC, but at a lesser frequency, include chrysene (6 samples), dibenz(a,h)anthracene (10 samples) and indeno(1,2,3-cd)pyrene (21 samples). Maximum concentrations of the most common compounds detected above the RDCSCC were found in sample SB88-1 as follows: benzo(a)anthracene (61 mg/kg), benzo(a)pyrene (75 mg/kg), benzo(b)fluoranthene (82 mg/kg) and benzo(k)fluoranthene (69,mg/kg). Results indicate fifty four samples contain one or more compounds at concentrations above the RDCSCC.

Each of the seven compounds detected above the RDCSCC were also detected above the NRDCSCC. The most common compounds detected above the NRDCSCC were again benzo(a)anthracene (16 samples), benzo(a)pyrene (56 samples), benzo(b)fluoranthene (14 samples) and benzo(k)fluoranthene (13 samples). Other compounds detected at concentrations above the NRDCSCC, but at a lesser frequency, include chrysene (1 samples), dibenz(a,h)anthracene (10 samples) and indeno(1,2,3-cd)pyrene (5 samples). Results indicate fifty four samples contain one or more compounds above the NRDCSCC.

Total semi-volatile concentrations ranged from less than 2 mg/kg to 743 mg/kg in sample SB88-1 located north of the site property along the southern side of Everett Street. The highest on-site total semi-volatile concentration was detected in sample SB129A1 (437 mg/kg) located along the southeast side of the former Rhodes building.

A complete listing of semi-volatile positive analytical results, including results above action levels, can be found in **Table 7 Surface Soil Samples - Positive Analytical Results - Semi-Volatiles**. Results are also shown on **Figure 19, Soil Results Above Criteria - Semivolatiles**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the NJDEP soil cleanup criteria.

5.2.1.1.3 TAL Metals

Analytical results from surface soil samples (0-2' depth) report positive concentrations of twenty four analytes. Eleven of these analytes were measured at concentrations exceeding the NJDEP RDCSCC. The most common analytes detected at concentrations above the RDCSCC include arsenic (62 samples), barium (52 samples), cadmium (45 samples) and lead (29 samples). Other analytes detected above the RDCSCC, but at a lesser frequency, include antimony (8 samples), beryllium (6 samples), chromium (1 sample), copper (3 samples), thallium (2 samples), mercury (1 sample) and zinc (10 samples). Arsenic concentrations range from 3.1 mg/kg to a maximum of 1640 mg/kg in sample SB133-1. Barium concentrations range from below method detection limits to 25,300 mg/kg in sample SB20-1. Concentrations of cadmium range from below detection limits to 21.4 mg/kg in sample SB129-1. Maximum lead concentrations were found in sample SB116-1 at 6620 mg/kg. Maximum concentrations detected for the remaining analytes above the RDCSCC are as follows: antimony (106 mg/kg, SB48-1), beryllium (2 mg/kg, SB33-1), chromium (845 mg/kg, SB133-1), copper (1260 mg/kg, SB129-1), thallium (19.6 mg/kg, SB129-1), mercury (16 mg/kg, SB36-1), and zinc (4470 mg/kg, SB106-1). Results indicate seventy three samples contain one or more analytes at concentrations above the RDCSCC.

Of the eleven analytes detected at concentrations above the RDCSCC, seven were also detected at concentrations in excess of the NRDCSCC (arsenic, beryllium, chromium, copper, lead, thallium and zinc). The most common analyte detected above the NRDCSCC was arsenic (62 samples). Beryllium

was detected at concentrations in excess of the NRDCSCC in six samples. Chromium was detected above NRDCSCC in one sample. Copper was detected above NRDCSCC in three samples. Lead was detected above the NRDCSCC in twenty two samples. Thallium was detected above NRDCSCC in two samples. Zinc was detected above NRDCSCC in ten samples. Results indicate sixty six samples contain one or more analytes at concentrations in excess of the NRDCSCC.

A complete listing of TAL metal positive analytical results, including results above criteria, can be found in **Table 8 - Surface Soil Samples - Positive Analytical Results - Metals**. Results are also shown on **Figure 22, Soil Results Above Criteria - Metals**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of analytes detected above each of the NJDEP soil cleanup criteria.

5.2.1.1.4 Pesticides/Polychlorinated Biphenyls (PCBs)

Analytical results from surface soil samples (0-2' depth) report positive concentrations of twenty three (23) pesticide/PCB parameters. Three (3) of these parameters were measured at concentrations exceeding the NJDEP RDCSCC. One (1) sample (SB08-1) exceeds the criteria for 4,4-DDE with a concentration of 6.9 mg/kg. Ten (10) samples exceed the criteria for Aldrin with the highest concentration from sample SB04-1 (45 mg/kg). Six (6) samples exceed the criteria for Dieldrin with the highest concentration from sample SB16-1 (4 mg/kg). Results indicate nineteen samples contain one or more pesticide parameters at concentrations in excess of the RDCSCC.

Of the pesticide compounds detected at concentrations in excess of the RDCSCC, aldrin (7 samples) and dieldrin (3 samples) were also detected in excess of the NRDCSCC. Results indicate nine samples submitted for laboratory analysis (SB03-1, SB04-1, SB05-1, SB08-1, SB16-1, SB17-1, SB19-1, SB144-1, SB157-1) contain either aldrin or dieldrin at concentrations above the NRDCSCC. No pesticide compounds were detected at concentrations in excess of the NJDEP IGWSCC.

Thirty seven samples submitted for laboratory analysis exceed the RDCSCC for total PCBs with the highest concentration from sample SB08-1 (65 mg/kg). Of the thirty seven samples containing total PCBs at concentrations in excess of the RDCSCC, twenty two also exceed the NJDEP NRDCSCC. Results indicate one (1) sample (SB08-1) located immediately north of the former Martin Aaron building processing areas contains total PCBs (65 mg/kg) in excess of the NJDEP IGWSCC. The result of 65 mg/kg identified in sample SB08-1 is also an exceedance of Toxic Substance Control Act (TSCA) levels for PCBs indicating the presence of regulated waste.

A complete listing of pesticide/PCB positive analytical results, including results above each of the three NJDEP soil cleanup criteria, can be found in **Table 9 - Surface Soil Samples - Positive Analytical Results - Pesticide/PCBs**. Results are also shown on **Figure 20, Soil Results Above Criteria - Pesticides**, and **Figure 21, Soil Results Above Criteria - Total PCB**, which show sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the NJDEP soil cleanup criteria for pesticides and PCBs, respectively.

Screening of total PCB was also completed during the second investigation phase using the Ensys Inc. PCB RIS[®] Soil Test System. Severe matrix interference was reported by the Kimball chemist with final extracted solutions resulting in a variety of colors. Based on these reports, the test kit data have been designated as highly suspect and such are not presented. Subsequent Phase III soil borings and samples provide a more accurate and reliable source of PCB delineation described in Section 6.0 below.

5.2.1.1.5 Dioxin/Furan

Analytical results from surface soil samples (0-2' depth) report positive concentrations of twenty five Dioxin/Furan parameters. Nine (9) of these parameters were measured at concentrations exceeding 1000 pg/g (1 ppb). USEPA toxic equivalency factors were applied to the dioxin/furan results to obtain the equivalent amount of 2,3,7,8 tetrachlorodibenzodioxin represented by the other compounds resulting in a total toxic equivalent value for each sample. Toxic equivalent results ranged from 0.492 pg/g in sample 46-1 to 280.691 pg/g in sample SB16-1. A complete listing of dioxin/furan positive analytical results can be found in **Table 10 - Soil Samples - Positive Analytical Results - Dioxin/Furan**. Results are also shown on **Figure 23, Dioxin/Furan Toxic Equivalent Results - Soil**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected.

5.2.1.2 Subsurface Soil Samples

5.2.1.2.1 Volatiles

Analytical results from subsurface soil samples (below 2' depth) report positive concentrations of thirty four volatile parameters. Fifteen of these parameters were measured at concentrations exceeding NJDEP IGWSCC. Compounds detected above criteria generally compare to compounds detected in surface samples with the addition of 2-butanone, ethylbenzene and vinyl chloride detected above the IGWSCC in subsurface samples. The most common compounds detected above IGWSCC in the subsurface soil were identical to surface soil results and include 1,2-dichloroethene (total) (31 samples), tetrachloroethene (35 samples), and trichloroethene (27 samples). Other compounds detected above the IGWSCC, but at a lesser frequency, include 1,1-dichloroethane (2 samples), 1,2-dichloroethane (6 samples), 2-butanone (2 samples), benzene (17 samples), chlorobenzene (3 samples), chloroform (12 samples), cis-1,2-dichloroethene (2 samples), ethylbenzene (3 samples), methylene chloride (13 samples), toluene (2 samples), vinyl chloride (2 samples) and xylene (total) (24 samples). 1,2-Dichloroethene (total) concentrations range from below detection limit to a maximum of 900 mg/kg in sample SB33-4. PCE concentrations range from below method detection limit to a maximum of 1500 mg/kg in sample SB32-2. TCE concentrations range from below method detection limit to a maximum of 390 mg/kg in sample SB33-4. Maximum concentrations for the remaining compounds detected in excess of the IGWSCC are as follows: 1,1-dichloroethane (74 mg/kg, TP13-1), 1,2-dichloroethane (360 mg/kg, SB32-2), 2-butanone (160 mg/kg, SB10-3), benzene (78 mg/kg, SB52-1), chlorobenzene (18 mg/kg, SB33-4), chloroform (15 mg/kg, SB32-2), cis-1,2-dichloroethene (46 mg/kg, SB129A3), ethylbenzene (320 mg/kg, SB51-1), methylene chloride (33 mg/kg, SB33-4), toluene (700 mg/kg, SB51-1), vinyl chloride (19 mg/kg, SB52-1) and xylene (total) (2000 mg/kg, SB51-1). Results indicate sixty one samples contain one or more compounds at concentrations above the IGWSCC.

Of the thirty four parameters with reported positive concentrations, nine were detected at concentrations in excess of the RDCSCC (1,2-dichloroethane, 1,2-dichloroethene (total), 1,2-dichloropropane, benzene, styrene, tetrachloroethene, trichloroethene, vinyl chloride and xylene (total)) and seven were detected above the NRDCSCC (1,2-dichloroethane, 1,2-dichloropropane, benzene, tetrachloroethene, trichloroethene, vinyl chloride, and xylene (total)). Results indicate thirty two samples contain one or more compounds at concentrations above the RDCSCC and twenty four samples, collected from borings located mainly within and near the processing areas of the former Martin Aaron building, contain one or more compounds at concentrations above the NRDCSCC. The most common

compound detected at concentrations above the RDCSCC and/or NRDCSCC was tetrachloroethene which exceeded both criteria in twenty one samples.

Total volatile concentrations ranged from less than 1 mg/kg to 3303 mg/kg in sample SB51-1. Nine (9) samples exceeded the NJDEP criteria for total volatiles (1,000 mg/kg). Total volatile concentrations in excess of the NJDEP criteria (1,000 mg/kg) were detected in samples collected immediately north and southeast of the Rhodes building (SB16-3 (1110 mg/kg), SB129A3 (1111 mg/kg)), beneath the processing area of the former Martin Aaron building (SB32-2 (2499 mg/kg), SB32-3 (1248 mg/kg), SB33-4 (2573)) and around the underground storage tanks located north of the Martin Aaron building (SB50-1 (1556 mg/kg), SB51-1 (3303 mg/kg), SB52-1 (2201), SB56-2 (2419 mg/kg) and SB59-1 (1223 mg/kg)).

A complete listing of volatile positive analytical results, including results above criteria, can be found in **Table 11 - Subsurface Soil Samples - Positive Analytical Results - Volatiles**. Results are also shown on **Figure 18, Soil Results Above Criteria - Volatiles**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the NJDEP soil cleanup criteria

5.2.1.2.2 Semi-Volatiles

Analytical results from subsurface soil samples (below 2' depth) report positive concentrations of thirty nine semi-volatile parameters. Twelve of these parameters were measured at concentrations exceeding one or more of the three NJDEP soil cleanup criteria (IGWSCC, RDCSCC, NRDCSCC). Five compounds (acenaphthene, benzo(b)fluoranthene, fluoranthene naphthalene, and pyrene) were measured at concentrations in excess of the IGWSCC. Sample SB112-3 contains benzo(b)fluoranthene (65 mg/kg), fluoranthene (170 mg/kg) and pyrene (130 mg/kg) at concentrations which exceed the IGWSCC. Sample SB23A-2 contains naphthalene (1900 mg/kg) in excess of the IGWSCC. Sample SB75-3 contains pyrene (120 mg/kg) in excess of the IGWSCC. Sample SB132A3 contains acenaphthene (120 mg/kg), fluoranthene (120 mg/kg), and naphthalene (130 mg/kg) in excess of the IGWSCC. Sample SB137-2 contains naphthalene (360 mg/kg) in excess of IGWSCC.

Of the thirty nine compounds with reported positive concentrations, nine were detected at concentrations above the RDCSCC. Similar to the surface soil results, the most common compounds detected above the RDCSCC include benzo(a)anthracene (23 samples), benzo(a)pyrene (24 samples), benzo(b)fluoranthene (22 samples) and benzo(k)fluoranthene (21 samples). Other compounds detected at concentrations above the RDCSCC, but at a lesser frequency, include bis(2-ethylhexyl)phthalate (1 sample), chrysene (9 samples), dibenz(a,h)anthracene (11 samples), indeno(1,2,3-cd)pyrene (17 samples) and naphthalene (2 samples). Maximum concentrations of the most common compounds detected above the RDCSCC were as follows: benzo(a)anthracene (97 mg/kg, SB112-3), benzo(a)pyrene (73 mg/kg, SB112-3), benzo(b)fluoranthene (65 mg/kg, SB112-3) and benzo(k)fluoranthene (26 mg/kg, SB75-3). Results indicate twenty eight samples contain one or more compounds at concentrations above the RDCSCC.

Seven of the nine compounds detected above the RDCSCC were also detected above the NRDCSCC. The most common compounds detected above the NRDCSCC were again benzo(a)anthracene (16 samples), benzo(a)pyrene (24 samples), benzo(b)fluoranthene (15 samples) and benzo(k)fluoranthene (14 samples). Other compounds detected at concentrations above the NRDCSCC, but at a lesser frequency, include chrysene (1 samples), dibenz(a,h)anthracene (11 samples) and indeno(1,2,3-

cd)pyrene (4 samples). Results indicate twenty five samples contain one or more compounds above the NRDCSCC.

Total semi-volatile concentrations ranged from less than 2 mg/kg to 6800 mg/kg in sample SB140-2 located across S. Broadway on the South Jersey Port property. The highest on-site total semi-volatile concentration is 3601 mg/kg in sample SB23A-2 located near the east property border.

A complete listing of semi-volatile positive analytical results, including results above each NJDEP cleanup criteria, can be found in **Table 12 - Subsurface Soil Samples - Positive Analytical Results - Semi-Volatiles**. Results are also shown on **Figure 19, Soil Results Above Criteria - Semivolatiles**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the NJDEP soil cleanup criteria.

5.2.1.2.3 TAL Metals

Analytical results from subsurface soil samples (below 2' depth) report positive concentrations of twenty four (24) TAL metal parameters. Twelve of these parameters were measured at concentrations exceeding the RDCSCC. Analytes detected above criteria generally compare to surface soil results with the addition of nickel (1 sample). Similar to the surface soil findings, the most common analytes detected above the RDCSCC include arsenic (91 samples), barium (72 samples), cadmium (59 samples) and lead (41 samples). Other analytes detected above the RDCSCC, but at a lesser frequency, include antimony (21 samples), beryllium (8 samples), chromium (12 samples), copper (3 samples), mercury (2 samples), thallium (2 samples) and zinc (21 samples). Arsenic concentrations range from 1.4 mg/kg to a maximum of 14,000 mg/kg in sample SB23-6. Barium concentrations range from below method detection limits to 28,400 mg/kg in sample SB92-3. Concentrations of cadmium range from .07 mg/kg to 231 mg/kg in sample SB75-3. Maximum lead concentrations were found in sample SB106-3 at 8,960 mg/kg. Maximum concentrations detected for the remaining analytes above the RDCSCC are as follows: antimony (198 mg/kg, SB30-3), beryllium (3.2 mg/kg, SB08-3), chromium (16,000 mg/kg, TP13-1), copper (1240 mg/kg, SB64-4), mercury (25.6 mg/kg, SB126-1), nickel (295 mg/kg, SE03-1), thallium (3 mg/kg, SB118-3), and zinc (15,200 mg/kg, SB69-3). Results indicate one-hundred ten samples contain analytes above the RDCSCC.

Of the twelve analytes detected at concentrations above the RDCSCC, eight were also detected at concentrations in excess of the NRDCSCC (arsenic, beryllium, cadmium, chromium, copper, lead, thallium and zinc). The most common analyte detected above the NRDCSCC was arsenic (91 samples). Beryllium was detected at concentrations in excess of the NRDCSCC in eight samples. Cadmium was detected above NRDCSCC in one sample. Chromium was detected above NRDCSCC in twelve samples. Copper was detected above NRDCSCC in three samples. Lead was detected above the NRDCSCC in twenty nine samples. Thallium was detected above NRDCSCC in two samples. Zinc was detected above NRDCSCC in twenty one samples. Results indicate ninety four samples contain one or more analytes at concentrations in excess of the NRDCSCC.

A complete listing of TAL metal positive analytical results, including results above each NJDEP soil cleanup criteria, can be found in **Table 13 - Subsurface Soil Samples - Positive Analytical Results - Metals**. Results are also shown on **Figure 22, Soil Results Above Criteria - Metals**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above each of the three NJDEP soil cleanup criteria.

5.2.1.2.4 Pesticides/PCBs

Analytical results from subsurface soil samples (below 2' depth) report positive concentrations of twenty three pesticide/PCB parameters. Three of these parameters were measured at concentrations exceeding the NJDEP RDCSCC. Thirteen samples exceed the RDCSCC for Aldrin with the highest concentration from sample SB05-3 (11 mg/kg). Six samples exceed the criteria for Dieldrin with the highest concentration from sample SB49-2 (0.92 mg/kg). Two samples exceed the criteria for heptachlor with the highest concentration from sample SB114-3 (4.5 mg/kg). Results indicate seventeen samples contain one or more pesticides at concentrations in excess of the RDCSCC.

Of the pesticide compounds detected at concentrations in excess of the RDCSCC, aldrin (6 samples), dieldrin (3 samples) and heptachlor (2 samples) were also detected in excess of the NRDCSCC. No pesticide compounds were detected at concentrations in excess of the NJDEP IGWSCC.

Thirty samples submitted for laboratory analysis exceed the RDCSCC for total PCBs with concentrations above criteria ranging from 0.63 mg/kg in sample SB38-3 to 107 mg/kg in sample TP05-1. Of the thirty samples containing total PCBs at concentrations in excess of the RDCSCC, sixteen also exceed the NJDEP NRDCSCC. Results indicate two samples, TP05-1 and TP09-1, contain total PCBs in excess of the NJDEP IGWSCC. The result of 107 mg/kg identified in sample TP05-1, and 83 mg/kg identified in sample TP09-1 are also an exceedance of Toxic Substance Control Act (TSCA) levels for PCBs indicating the presence of regulated waste.

A complete listing of pesticide/PCB positive analytical results, including results above each of the three NJDEP soil cleanup criteria, can be found in **Table 14 - Subsurface Soil Samples - Positive Analytical Results - Pesticide/PCBs**. Results are also shown on **Figure 20, Soil Results Above Criteria - Pesticides**, and **Figure 21, Soil Results Above Criteria - Total PCB**, which show sample locations, sample identifications, sample depths, and concentrations and distribution of compounds detected above the each of the NJDEP soil cleanup criteria for pesticides and PCBs, respectively.

Screening of total PCB was also completed during the second investigation phase using the Ensysis Inc. PCB RIS[®] Soil Test System. Severe matrix interference was reported by the Kimball chemist with final extracted solutions resulting in a variety of colors. Based on these reports, the test kit data have been designated as highly suspect and such are not presented. Subsequent Phase III soil borings and samples provide a much more accurate and reliable source of PCB delineation data described in Section 6.0 below.

5.2.1.2.5 Total Petroleum Hydrocarbons (TPH)

Analytical results from subsurface soil samples (below 2' depth) report positive concentrations of Total Petroleum Hydrocarbons. One sample (SB59-1) exceeds the NJDEP's cleanup criteria for total organics with a concentration of 19,000 mg/kg. A complete listing of TPH positive analytical results, including results above criteria, can be found in **Table 15 - Soil Samples - Positive Analytical results - TPH**. Results are also shown on **Figure 24, Petroleum Hydrocarbon Positive Results**, which shows sample locations, sample identifications, depths, and concentrations compounds detected.

5.2.1.2.6 Additional Analyses

Eleven subsurface soil samples were also analyzed for Particle Size, Total Organic Carbon (TOC) and Total Organic Halogen (TOX). None of these samples exceed the NJDEP's most stringent cleanup criteria for TOC or TOX. A complete listing of analytical results can be found in **Table 16 - Particle Size Analysis**.

5.2.1.2.7 Product (Unidentified Solid) Sample

A single product sample (white powdery substance) was recovered from TP21 at a depth of 4-5 feet. Analytical results from this sample report positive concentrations of: fourteen TAL metal parameters; and four pesticides/PCBs parameters. None of these parameters were measured at concentrations exceeding any of the three NJDEP soil cleanup criteria. Semivolatile results from the product sample collected during the first investigation phase were rejected and deemed unusable by the data validation process as described in section 4.0 above. Therefore, semivolatile results are not reported. A complete listing of these positive analytical results, as well as compatibility testing results, can be found in **Table 17 - Solid Waste Sample - Positive Analytical Results**.

5.2.1.3 Sediment Samples

5.2.1.3.1 Volatiles

Analytical results from sediment samples (sewer basins) report positive concentrations of seventeen VOC parameters. Thirteen of these parameters were measured at concentrations exceeding the NJDEP IGWSCC. The most common compounds detected above the IGWSCC include styrene, PCE, toluene, TCE, and xylene (total) identified in both sample SD01-1 and sample SD02-1. Other compounds detected at concentrations above the IGWSCC include 1,1,1-trichloroethane (140 mg/kg), 1,1-dichloroethane (21 mg/kg), 1,2-dichloroethene (total) (880 mg/kg), and chlorobenzene (7.4 mg/kg) in sample SD01-1; and 1,2-dichloropropane (63 mg/kg), 2-butanone (190 mg/kg), acetone (110 mg/kg), and chloroform (4.7 mg/kg) in sample SD02-1.

Seven of the thirteen compounds detected at concentrations in excess of the IGWSCC were also detected at concentrations above the RDCSCC and four compounds were detected above the NRDCSCC. Compounds detected above either the RDCSCC or NRDCSCC and their maximum concentrations include 1,1-dichloroethene (total) (880 mg/kg), 1,2-dichloropropane (63 mg/kg), styrene (39/mg/kg), PCE (2700 mg/kg), toluene(5500 mg/kg), TCE (340 mg/kg), and xylene (total) (680 mg/kg). A complete listing of volatile compound positive analytical results, including results above the NJDEP soil cleanup criteria, can be found in **Table 18 - Sewer Basin Samples - Positive Analytical Results**.

5.2.1.3.2 Semi-Volatiles

Semi-volatile results from sediment samples (sewer basins) collected during the first investigation phase were rejected and deemed unusable by the data validation process as described in section 4.0 above. Therefore, results are not reported..

5.2.1.3.3 TAL Metals

Analytical results from sediment samples (sewer basins) report positive concentrations of twenty three TAL metal parameters. Seven of these parameters were measured at concentrations exceeding the NJDEP RDCSCC. The most common analytes detected above the RDCSCC and the corresponding maximum concentrations include antimony (26.5 mg/kg, SD02-1), cadmium (29.3 mg/kg, SD01-1), lead (2710 mg/kg, SD02-1) and zinc (3110 mg/kg, SD02-1) identified in both sample SD01-1 and sample SD02-1. Other analytes identified at concentrations in excess of the RDCSCC include arsenic (38.7 mg/kg, SD02-1), barium (1980 mg/kg, SD02-1), and nickel (819 mg/kg, SD02-1). Of the analytes detected above the RDCSCC, three (3) were also detected at concentrations above the NRDCSCC. Analytes detected above the NRDCSCC include arsenic, lead, and zinc. A complete listing of TAL metal positive analytical results, including results above the NJDEP soil cleanup criteria, can be found in **Table 18 - Sewer Basin Samples - Positive Analytical Results**.

5.2.1.3.4 Pesticides/PCBs

Analytical results from sediment samples (sewer basins) report positive concentrations of five pesticide/PCB parameters. None of these parameters were measured at concentrations exceeding any of the three NJDEP soil cleanup criteria. (Comparison was made to soils cleanup criteria to develop a contrast between sewer basin sediments and on-site soil contaminants identified above.) A complete listing of pesticide/PCB positive analytical results can be found in **Table 18 - Sewer Basin Samples - Positive Analytical Results**.

5.2.2 Groundwater Samples

5.2.2.1 Shallow Monitoring Well/Hydropunch® Samples

5.2.2.1.1 Volatiles

Analytical results from shallow monitoring well/Hydropunch® groundwater samples report positive concentrations of thirty two volatile parameters. Nine of these parameters were measured at concentrations exceeding NJDEP's Groundwater Quality Standard (GQS). Two samples exceed the standard for 1,2-dichloroethane with the highest concentration from sample MW6S-4 (12 ug/l). One sample (SB07-4) exceeds the standard for cis-1,2-dichloroethene (total) with a concentration of 73 ug/l. One sample (MW9S-3) exceeds the standard for 1,2-dichloropropane (with a concentration of 2 ug/l). One (1) sample (MW2S-1) exceeds the standard for Acetone with a concentration of 1400 ug/l. Ten samples exceed the standard for benzene with the highest concentration from sample SB07-5 (560 ug/l) and monitoring well sample MW5S-4 (360 ug/l). Three samples exceed the standard for tetrachloroethene with the highest concentrations from sample SB10-4 (4 ug/l) and monitoring well sample MW9S-3 (2 ug/l). Four samples exceed the standard for trichloroethene with the highest concentration from samples MW9S-3 and MW6S-4 (3 ug/l). One sample (MW3S-3) exceeds the standard for vinyl chloride with a concentration of 13 ug/l. Two (2) samples exceed the standard for Xylene (total) with the highest concentration from sample SB07-5 (3280 ug/l).

A complete listing of volatile positive analytical results, including results above GQS, can be found in **Table 19- Shallow Groundwater Samples - Positive Analytical Results - Volatiles**. Results are also shown on **Figure 25, Groundwater Results Above GQS - Organics**, which shows sample locations, identifications, depths and concentrations of organic compounds detected above NJDEP GQS.

5.2.2.1.2 Semi-Volatiles

Analytical results from shallow monitoring well groundwater samples report positive concentrations of twenty six semi-volatile compound parameters. Two (2) of these parameters (n-nitrosodiphenylamine (1) and naphthalene) were measured at concentrations exceeding NJDEP's GQS. Both compounds were detected at concentrations in excess of the GQS in samples collected from wells MW1S and MW2S. The highest concentration of each compound was found in well MW2S during the 11/10/98 and 1/19/00 sampling events. Maximum concentrations of n-nitrosodiphenylamine (1) were found in samples MW2S-3 (390 ug/l) and MW2S-4 (440 ug/l). Maximum concentrations of naphthalene were found in the same two samples (12000 ug/l and 9800 ug/l, respectively). Concentrations detected in MW1S ranged from 24 ug/l to 17 ug/l n-nitrosodiphenylamine and 3700 ug/l to 1800 ug/l naphthalene. No semivolatile compounds were detected above the method detection limit in sample MW10S-3.

In addition, well MW2S was found to contain 2-methylphenol, 4-methylphenol, and phenol at concentrations in excess of the interim generic criteria for non-carcinogenic organic compounds of 100 ug/l. The maximum concentration of 2-methylphenol (2100 ug/l) was found during the 11/10/98 sampling event. Concentrations of 4-methylphenol ranged from 3100 ug/l to 3800 ug/l over the 11/10/98 and 1/19/00 sampling events. Over the same sampling events, phenol concentrations ranged from 2600 ug/l to 3100 ug/l.

A complete listing of semi-volatile positive analytical results, including results above GQS, can be found in **Table 20 - Shallow Groundwater Samples - Positive Analytical Results - Semi-Volatiles**. Results are also shown on **Figure 25**.

5.2.2.1.3 TAL Metals

Analytical results from shallow monitoring well groundwater samples report positive concentrations of twenty three TAL metal parameters. Twelve of these parameters were measured at concentrations exceeding NJDEP's GQS. Iron was detected above GQS in each sample submitted for analysis with concentrations ranging from 1600 ug/l in sample MW9S-4 to 104000 ug/l in sample MW8S-4. Aluminum and manganese were detected above GQS in all but one samples submitted (MW5S-4) with the highest concentrations recorded in samples MW1S-2 (51,800 ug/l) and MW8S-3 (1840 ug/l), respectively. Arsenic and lead were the next most frequently detected analytes exceeding GQS in nineteen samples. The maximum arsenic concentration was detected in sample MW1S-2 (9800 ug/l). The maximum lead concentration was found in sample MW8S-4 (1470 ug/l). Other analytes detected at concentrations in excess of the GQS include sodium (12 samples), chromium (12 samples), barium (7 samples), cadmium (6 samples), nickel (1 sample) and mercury (1 sample). Maximum concentrations for these analytes are as follows: sodium (572,000 ug/l, MW7S-3), chromium (1090 ug/l, MW1S-2), barium (16,100, MW2S-4), cadmium (55.5 ug/l, MW8S-4), nickel (135 ug/l, MW8S-4) and mercury (2.7 ug/l, MW4S-3).

A complete listing of TAL metal positive analytical results, including results above GQS, can be found in **Table 21 - Shallow Groundwater Samples - Positive Analytical Results - Metals**. Results are also shown on **Figure 26, Groundwater Results Above GQS - Inorganics**, which shows sample locations, sample identifications, sample depths, and concentrations and distribution of inorganic analytes detected above NJDEP GQS.

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5.2.2.1.4 Pesticides/PCBs

Analytical results from shallow monitoring well groundwater samples report positive concentrations of thirteen pesticide/PCB parameters. Two of these parameters, aldrin and dieldrin were measured at concentrations exceeding NJDEP's GQS. Aldrin was detected at a concentration of 0.13 ug/l in sample MW6S-4, while dieldrin was detected at a concentration of 0.056 ug/l in sample MW11S-5.

In addition, one sample (MW6S-4) was found to contain a total PCB concentration of 5.4 ug/l which exceeds the NJDEP GQS. It should be noted that up until the Phase III sampling events, no pesticide parameters had been detected above GQS in any of the wells sampled. Furthermore, no aroclors had been detected above the method detection limits. A complete listing of pesticide/PCB positive analytical results, including results above GQS, can be found in **Table 22 - Shallow Groundwater Samples - Positive Analytical Results - Pesticide/PCBs**. Results are also shown on **Figure 25**.

5.2.2.2 Deep Monitoring Well/Hydropunch Samples

5.2.2.2.1 Volatiles

Analytical results from deep monitoring well/Hydropunch® groundwater samples report positive concentrations of eleven volatile parameters. One of these parameters was measured at a concentration exceeding NJDEP's GQS. One sample (MW1M-2) exceeds the standard for tetrachloroethene (PCE) with a estimated concentration of 8 µg/l. The result is evaluated as suspect because a duplicate of this sample (MW1M-1) did not report PCE above the detection limit. Also, subsequent samples of the same well (MW1M-3, MW1M-5, MW1M-5D and MW1M-6) reported no PCE above the method detection limits. No other compounds were detected at concentrations above GQS.

A complete listing of volatile positive analytical results, including results above GQS, can be found in **Table 23 - Deep Groundwater Samples - Positive Analytical Results - Volatiles**. Results are also shown on **Figure 25, Groundwater Results Above GQS - Organics**, which shows sample locations, sample identifications, depths, and concentrations of compounds detected above GQS.

5.2.2.2.2 Semi-Volatiles

Analytical results from deep monitoring well groundwater samples report positive concentrations of nine semi-volatile compound parameters. Only one compound (bis(2-ethylhexyl)phthalate) was detected at a concentration in excess of the NJDEP GQS. The compound was detected in new (Phase III) off-site well MW11M at a concentration of 32 ug/l (sample MW11M-5). It should be noted that the duplicate sample (MW11M-6) from this well indicates a estimated concentration of 1 ug/l. In addition, the previous sample collected approximately one month prior (MW11M-4) did not detect bis(2-ethylhexyl)phthalate above the detection limit. No other parameters were measured at concentrations exceeding NJDEP's GQS. A complete listing of semi-volatile positive results, including results above GQS, can be found in **Table 24 - Deep Groundwater Samples - Positive Analytical Results - Semi-Volatiles**. Results are also shown on **Figure 25**.

5.2.2.2.3 TAL Metals

Analytical results from deep monitoring well groundwater samples report positive concentrations of twenty one TAL metal parameters. Six of these parameters were measured at concentrations exceeding

NJDEP's GQS. Seven samples exceed the standard for Aluminum with the highest concentration from sample MW1M-4 (3240 µg/l). Nine samples exceed the standard for Arsenic with the highest concentration from sample MW2M-4 (528 µg/l). Fourteen samples exceed the standard for Iron with the highest concentration from sample MW2M-4 (20,900 µg/l). Two samples exceed the standard for lead with the highest concentrations in samples MW2M-3 (11.9 ug/l) and MW9D-3 (11.8 ug/l). Sixteen samples exceed the standard for Manganese with the highest concentration from sample MW11M-4 (2390 µg/l). Six samples exceed the standard for sodium with the highest concentration in sample MW11M-4 (117000 ug/l).

A complete listing of TAL metal positive analytical results, including results above GQSs, can be found in **Table 25 - Deep Groundwater Samples - Positive Analytical Results - Metals**. Results are also shown on **Figure 26, Groundwater Results Above GQS - Inorganics**, which shows sample locations, sample identifications, sample depths and concentrations and distribution of inorganic compounds detected above NJDEP GQS.

5.2.2.2.4 Pesticides/PCBs

Analytical results from deep monitoring well groundwater samples report positive concentrations of six pesticide/PCB parameters. None of these parameters were measured at concentrations exceeding NJDEP's GQS. A complete listing of pesticide/PCB positive analytical results can be found in **Table 26 - Deep Groundwater Samples - Positive Analytical Results - Pesticides/PCBs**.

5.2.2.3 Development/Purge Water Holding Tank Samples

A single water sample (HTANK-1) was recovered from the holding tank used to store the development/purge water from the installation, and subsequent sampling, of the new monitoring wells during the first investigation phase. Analytical results from this sample report positive concentrations of two volatile parameters (1,2-dichloroethene (total), methylene chloride) and zero pesticides/PCBs parameters. None of these parameters were measured at concentrations exceeding NJDEP's GQS. Based on this report of low-level contamination, NJDEP instructed L. Robert Kimball and Associates, Inc. to discharge the contents of the holding tank on-site. The tank was allowed to slowly discharge so as not to allow any effluent to leave the site area or to create a "ponding" situation. The discharge was performed without incident.

A complete listing of positive analytical results, including results above action levels, can be found in **Table 27 - Holding Tank Sample - Positive Analytical Results**. All semivolatile and TAL metal analysis results were rejected and deemed unusable by the data validation process as described in section 4.0 above. Therefore, semivolatile and TAL metal results are not reported.

5.2.2.4 Camden City Well #7 Samples

Potable water samples (prior to treatment) were recovered, during two (2) sampling events of the first investigation phase, from Camden City Well #7, located approximately 3500 feet southeast of the site. Analytical results from this sample report positive concentrations of: two volatile parameters (chloromethane and methylene chloride) and one pesticides/PCBs parameter (dieldrin). None of these parameters were measured at concentrations exceeding NJDEP's GQS. Analytical results from these samples also report positive concentrations of nine TAL metal parameters. Two of these parameters (iron (19300 ug/l) and manganese (327 ug/l)) were measured exceeding NJDEP's GQS.

A complete listing of positive analytical results, including results above action levels, can be found in **Table 28 - City Well Number 7 Samples - Positive Analytical Results**. All semivolatile results and results from two samples submitted for TAL metal and volatile organics analysis were rejected and deemed unusable by the data validation process as described in section 4.0 above. Therefore, no semivolatile results and only one set of TAL metal and volatile organic results are reported.

6.0 NATURE AND EXTENT OF CONTAMINATION

Results of intrusive remedial investigation activities indicate former site operations and disposal practices have resulted in contamination of site surface and subsurface soil and shallow groundwater beneath the site. Intrusive activities found the majority of the yard area of the site consists of fill (ash, cinders, demolition rubble) with indications of possible former disposal areas containing drum liners, skimmer belts, buckets and other miscellaneous debris. Results of environmental sampling activities indicate surface and subsurface soil beneath the Martin Aaron building, throughout the yard area and beyond the property borders contain levels of organic and inorganic constituents in excess NJDEP soil cleanup criteria. The primary contaminants of concern within the site surface and subsurface soil include chlorinated and aromatic volatile organic compounds; semi-volatile compounds consisting mostly of polyaromatic hydrocarbons (PAH); pesticides/PCBs and metals.

Hydrogeologic investigation results indicate organic and inorganic constituents are present at concentrations in excess of the NJDEP Groundwater Quality Standards within the shallow and deep groundwater zones beneath the site. The primary constituents of concern within the site shallow groundwater zone include chlorinated and aromatic volatile compounds; semi-volatile compounds (PAH); pesticide/PCBs; and metals. Deep groundwater zone constituents of concern include metals and, to a lesser degree, chlorinated volatile compounds.

6.1 Physical Geology/Hydrogeology Assessment

Intrusive remedial investigative activities conducted onsite indicate that the majority of top and shallow subsoils have been removed from the site and replaced with various fill materials, including: construction debris (bricks, concrete, etc.); ashes and cinders; slag-type materials; and in minor cases, wood and refuse. This fill layer ranges from two to seven feet in thickness and is relatively consistent in its existence over the entire site.

The unconsolidated sediments immediately beneath the fill consist primarily of sands and gravels with intervals of silts and clay (Magothy Formation). On-site borings evidence the existence of this formation, which was initially encountered at an approximate depth of ten feet, and ranged in thickness from fifty to fifty two feet.

Under the Martin Aaron site, the upper confining bed between the upper and middle aquifers of the PRM system was expected to be located approximately 40 feet below ground surface and to be less than twenty feet thick. Intrusive on-site remedial investigative activities encountered what was believed to be the uppermost confining clay layer at depths ranging from approximately 57 to 63 feet. Intrusive activities at the site indicate this layer is at least five feet thick. A geotechnical sample obtained from (SB11) this layer (remolded to a density of 106.6 pcf) exhibited a hydraulic conductivity of 4.1×10^{-8} cm/sec. Reports indicate the upper most confining bed consists of thin- to thick-bedded sequence of micaceous silts and clays (Zapcza, 1984) with an estimated hydraulic conductivity of 10^{-6} cm/sec.

Static water levels obtained during remedial investigative activities evidence shallow groundwater levels between 5.25 and 14.40 feet below ground surface, and deeper groundwater levels between 13.83 and 15.43 feet below ground surface. Measured groundwater elevations in the shallow and deep wells indicate a potential for vertical groundwater movement. Shallow groundwater flow within the upper aquifer is to the east and southeast based on groundwater elevations measured in site monitoring wells. However, based on observations during test pit excavation and soil boring activities, building

foundations and subsurface structures are believed to influence the movement of on-site shallow water creating local mounds and sinks. Secondary flow patterns, due to the observed mounds and sinks, may exist within the site boundaries resulting in migration (horizontal and/or vertical) pathways and/or velocities different than predicted from static water elevation measurements.

The relatively shallow groundwater evidenced in the northwestern portion of the site (MW1S) and extending west onto the South Jersey Port Corp. property (MW4S and MW8S) may be representative of a local perched groundwater zone (Refer to Figure 10 and Figure 12; Section 3 above). Soil borings completed in the south and southwestern portions of the South Jersey Port Corp. property during the second investigation phase evidenced the first groundwater at depths of 10 to 12 feet below ground surface indicating a possible southern extent to this shallow perched water. Data indicate that the shallow groundwater static levels approach levels recorded in the deeper wells on the eastern portions of the site and south east of the site at monitoring wells MW9S, MW9D, MW11S and MW11D.

Deeper groundwater flow within the upper aquifer is to the east and southeast along the dip of the local formations. The easterly flow is expected to be additionally enhanced by groundwater withdrawal at various industrial and public supply wells located east of the site.

6.2 Former Disposal Practice Assessment

Magnetic and electromagnetic induction surveys completed at the Martin Aaron site identified several areas of possible drum and other debris disposal. Data quality was generally good considering the extensive cultural noise features at the site (buildings, fence, Rhodes Drum operations). Later excavation activities confirmed that several interpreted geophysical anomalies were probably caused by subsurface structures including footings, concrete pads, pipe runs and other subsurface utilities.

Ground Penetrating Radar (GPR) surveys conducted over the interpreted geophysical anomalies were not effective in delineating the horizontal extent of buried objects. Penetration depths were limited due to the extremely high conductivity of the site soils observed in the electromagnetic induction survey. In addition, the abundance of subsurface structures at the site prohibited identification of burial pits as opposed to construction debris. However, GPR surveys were effective in delineating the actual location of USTs north of the former Martin Aaron building and one UST east of the building.

Test pits excavated at interpreted geophysical anomalies generally encountered fill consisting of ash, cinders, brick, concrete, scrap metal, etc., at all excavation locations. Several excavations confirmed historical reports of former buildings with the discovery of subsurface footings, pipe runs, and other subsurface structures including a subsurface concrete pad or possible vault and vertical 8- inch diameter pipe (possible former well) at test pit TP24. The majority of test pits revealed the probable cause of observed geophysical anomalies. Subsurface disposal areas were confirmed at test pit locations TP08 located in the north central portion of the yard area, TP11 located in the northeast portion of the property and TP21 located just east of the Rhodes operations with the discovery of buried drum rings, boots, and gloves in test pit TP08, drum liners, gloves and drum rings in test pit TP11 and skimmer belts, drum liners, buckets, and solid product (white solid) in test pits TP21 and TP23.

Results of the test pit excavation activities and recent removal activities conducted by the NJDEP indicate that past subsurface disposal practices are evident and containerized wastes are buried at the site. Drums were excavated by the NJDEP in the vicinity of geophysical anomaly M3 in the summer of 1999. However, findings of the intrusive investigation do not support reports of widespread burial.

6.3 Sewer Basin Assessment

Excavations around sewer basin numbers 2 (east of former Martin Aaron building) and former basin 4 east of Rhodes Drum building exposed the basin walls and associated piping. Basin number 3 (reportedly between the former Martin Aaron building and Rhodes Drum building) could not be located but a test pit (TP01) was excavated in the reported vicinity.

Except for some loose bricks encountered near the top of sewer basin 4, both basins appeared to be competent and intact to the depth excavated. No leaks were evident from the piping exposed. Soil adjacent to basin 2 was observed to be stained and exhibited a strong odor. It is uncertain whether observed staining is the direct result of discharges from the basin or general site operations. Results of soil sampling (SE01-1) from the excavation adjacent to sewer basin 2 indicates chlorinated hydrocarbons (1,2-dichloroethene (total), 1,2-dichloroethane, trichloroethene) and aromatics (xylene (total)) at concentrations in excess of the IGWSCC. These results are similar to results found in soil beneath the entire processing area of the former Martin Aaron building complex. Soil adjacent to basin 4 also exhibited a slight odor but no staining was evident. Extensive construction debris (bricks and concrete) were identified in soil adjacent to Basin 4.

Sediment samples collected from former basin numbers 1 (within the former Martin Aaron building) and 4 were found to contain chlorinated and aromatic volatile compounds, and metals at concentrations above NJDEP soil cleanup criteria. Compounds and analytes detected are consistent with constituents found in the site soil and groundwater. As mentioned above, chlorinated and aromatic volatile compounds and metals have been identified throughout the property. Results of soil sampling adjacent to Basins 2 and 4 do not indicate that the basins are major sources of the site contamination, relative to results of sampling within the process areas, but probably are contributing.

6.4 Underground Storage Tank Assessment

Soil and groundwater investigations conducted in the vicinity of the underground storage tanks (USTs) located immediately north (three known USTs) and east (one UST) of the former Martin Aaron building found evidence of impacts attributable to past leaks and spills. During the Summer of 1999, the NJDEP completed a removal action of all on-site USTs and associated soil. The following assessment is based on data collected prior to the removal actions.

Investigations around the three former USTs located north of the Martin Aaron building evidenced strong fuel odors from two to three feet below ground surface up to a maximum depth of sixteen feet below ground surface. At depths between six and eight feet below ground surface, an oily sheen was observed in the site soil. Analytical results of samples collected from soil borings advanced around the USTs located north of the building (SB50 to SB61) evidenced some of the highest total volatile organic contamination beneath the site, with results above 1000 mg/kg ranging from 1223 mg/kg (SB59) to 3303 mg/kg (SB51). Five of the eleven borings advanced to investigate the USTs contained total volatiles in excess of 1000 mg/kg.

Based on the investigation activities, the impacts from the USTs located north of the building extend north to at least boring VOA1, to the west no further than boring SB02, and to the south no further than boring SB112. These limits were established based on the absence of aromatic hydrocarbons (benzene, toluene, xylene, etc.) at concentrations above NJDEP soil cleanup criteria in these borings. To the east,

aromatic hydrocarbons are present above NJDEP soil cleanup criteria in borings SB33 and SB31 advanced within the former building, SB05 and SB08 advanced just north of the building, and SB12, SE01, and TP01 located east of the building. This trend in contamination, which corresponds closely to the shallow groundwater gradient, probably indicates the extent of impacts attributable to the USTs. A more definite delineation of the eastern extent of impacts is hindered by the presence of elevated levels of chlorinated hydrocarbons beneath the former building.

Aromatic compounds were detected at concentrations above NJDEP GQS in shallow groundwater monitoring wells MW7S (formerly located adjacent to the USTs), MW6S located east of the tank area, MW5S located northeast of the tank area, and MW2S located along the east property border. The highest aromatic hydrocarbon concentrations were observed in wells MW7S and MW5S (both containing benzene at greater than 300 ug/l). Based on the current data, contamination in wells MW5S, MW7S and MW6S is interpreted as being attributable to the UST area. Contamination found in well MW2S is probably due to a more local source as described in subsequent Sections below. Aromatic hydrocarbons at concentrations above the NJDEP GQS were not found in any other wells including the deep monitoring wells.

Investigations completed around the one UST formerly located east of the former Martin Aaron building found no evidence of impacts attributable to the UST.

6.5 Type and Distribution of Soil Contamination

Near surface and subsurface soil contamination is wide spread throughout the site and extends beyond the site property borders. Contaminant parameters detected in excess of NJDEP soil cleanup criteria include: chlorinated and aromatic volatile organic compounds; semi-volatile compounds consisting mostly of polyaromatic hydrocarbons (PAH); metals; and pesticides/PCBs.

6.5.1 Volatile Organics

Volatile organic contamination is widespread across the Martin Aaron property and was found to extend beyond the property borders to the northeast, east and possibly to the southeast. Seventeen volatile organic compounds were detected in site surface and/or subsurface soil at concentrations in excess of at least one of the three NJDEP soil cleanup criteria. Volatile compounds of concern include 1,2-dichloroethane, 1,2-dichloroethene (total), 1,2-dichloropropane, benzene, styrene, tetrachloroethene, toluene, trichloroethene, vinyl chloride and xylene (total) found in site surface and/or subsurface soil at concentrations in excess of the NJDEP RDCSCC. Volatile compounds detected at concentrations in excess of the NJDEP NRDCSCC include 1,2-dichloroethane, 1,2-dichloropropane, benzene, tetrachloroethene, toluene, trichloroethene, vinyl chloride and xylene (total). In general, volatile compound concentrations in site soil were found to decrease with depth across the site. However, the frequency of occurrence and number of compounds detected generally increase with depth.

Shaded and hatched areas on **Figure 18, Soil Results Above Criteria - Volatiles**, represent the estimated extent of volatile organic contamination in excess of the IGWSCC, RDCSCC and NRDCSCC beneath the Martin Aaron site. Concentrations in excess of cleanup criteria were most frequently observed within and around processing areas of the site (near buildings and underground tank areas). Volatile organic concentrations observed in samples collected from the yard area (north of the buildings) probably are a result of former surface and subsurface disposal practices.

As shown on **Figure 18**, results of sampling activities indicate the extent of volatile organic contamination at concentrations in excess of the NJDEP IGWSCC has been delineated to the north, northwest, west, southwest, and southeast with contamination extending only to the property borders in each direction. To the northeast, volatile organic concentrations in excess of the IGWSCC were identified across the property border (SB95) and extending across Sixth Street to boring SB105. To the east, volatile contamination above IGWSCC was identified in surface soil across the property border at boring SB98. No volatile organic contamination was identified further east across sixth Street. To the south (property adjacent to the former Rhodes building), the extent of possible soil contamination in excess of the IGWSCC remains unknown but was found to extend at least to the south property borders.

When compared to the NJDEP RDCSCC, and as shown on **Figure 18**, the extent of volatile organic contamination falls completely within the IGWSCC delineation with contamination extending across the property borders to the northeast and possibly to the south (south of the Rhodes building). Only two off-site boring locations (SB95 and SB105) were found to contain volatile organic contamination in excess of the RDCSCC. The lack of sample information on the property south of and adjacent to the Rhodes Drum facility does not allow for delineation to the south, however, results of samples collected from soil borings SB132 and SB133 southeast of the property did not contain volatile compounds above the RDCSCC. When compared to the NRDCSCC, the extent of volatile organic contamination is virtually identical to the extent in excess of the RDCSCC with the exception of the northeast portion of the site where contamination extends only to boring SB95 and areas northeast of the former Rhodes building. Delineation of the extent of soil contamination to the south of the former Rhodes building is again limited by the lack of sampling information on the adjacent property.

Figure 27, Total Volatiles - Surface Soil and **Figure 28, Total Volatiles - Subsurface Soil**, present the distribution of total volatile concentrations. Increased total volatile results are presented through increased symbol size. Total volatile concentrations in excess of NJDEP criteria for total volatile compounds (1000 ppm) were identified in surface and subsurface soil beneath the northern portions of the Martin Aaron building (processing area) and the yard area just north of the building, and in subsurface soil immediately north and east of the former Rhodes building. The eastern most sample containing total volatiles above 1000 mg/kg was collected along the south property border (SB129). Shaded areas on Figures 27 and 28 present the estimated extent of total volatiles in surface and subsurface soil, respectively, in excess of 1000 mg/kg.

Volatile organic contamination within the site surface and subsurface soil consists mainly of chlorinated volatile compounds and aromatic volatile compounds. Based on sampling results, chlorinated volatile compounds detected at concentrations in excess of either the IGWSCC, RDCSCC or NRDCSCC are present across the entire Martin Aaron property and extend beyond the property boundaries to the northeast (SB95), east (SB98), and possibly south. Aromatic hydrocarbon compounds detected at concentrations in excess of NJDEP soil cleanup criteria are generally located in two areas: around the former underground storage tanks immediately north of the former Martin Aaron building (soil borings SB50 to SB60) extending east beneath the processing area of the building to test pit TP01 and an area northeast of the Rhodes Drum building defined by soil borings SB16, SB23, SB120, SB123 and test pit TP21. In general, aromatic hydrocarbon contamination does not extend beyond the property borders.

The most common chlorinated compounds detected include 1,2-dichloroethene (total), tetrachloroethene and trichloroethene. The highest concentrations of chlorinated volatile compounds were detected in the vicinity of soil borings SB31, SB32 and SB33 located in the northeast portion of the former Martin Aaron building and areas adjacent to and north of the building at soil boring location SB05. These

results are consistent with a source of volatile contamination originating from drum processing areas within the building. South of the source area, chlorinated volatile compound concentrations generally decrease to below NJDEP cleanup criteria at boring locations SB42, SB45, and SB26 marking a probable southern extent of migration. To the west, no chlorinated hydrocarbons at concentrations in excess of NJDEP soil cleanup criteria were identified in borings located along South Broadway, marking a western limit of migration.

To the north and northeast, contaminant concentrations vary across the site. A second area of elevated chlorinated hydrocarbon concentrations was identified at test pit TP13 located near the northeast corner of the site and boring SB95 located just beyond the northeast property border. Elevated concentrations of chlorinated compounds at test pit TP13 (3-4 feet depth) and SB95 (surface and subsurface) may indicate an area of past subsurface disposal as opposed to a limit of migration.

To the east and southeast, chlorinated compounds in site soil at concentrations greater than NJDEP soil cleanup criteria extend across the property to at least borings SB130 and SB131 located along the east property boundary and SB19 located in the southeast corner of the property. Phase III investigations confirmed the presence of chlorinated hydrocarbons above all three NJDEP soil cleanup criteria beneath the former Rhodes building. Only one sample (SB98-1) collected from soil borings advanced east of the property border contains chlorinated hydrocarbons in excess of NJDEP soil cleanup criteria. Waste encountered while excavating test pit TP21 indicates an area of past subsurface disposal as opposed to an extent of contaminant migration. To the west, chlorinated volatile compound contamination in site surface and subsurface soil extends at least to soil boring locations SB02 and SB01. No chlorinated hydrocarbon concentrations in excess of NJDEP soil cleanup criteria were identified beyond the north, northwest, west, or southwest property borders or on the South Jersey Port. Corp. property located across South Broadway.

Aromatic hydrocarbon contamination in site soil consists mainly of benzene, toluene, and xylene (total). Contamination identified around the underground storage tanks located just north of the former Martin Aaron building is probably due to spills and leaks associated with the tanks. Strong odors and a distinctive sheen were observed during advancement of soil borings around the tanks. As mentioned in Section 6.4, above, the eastern portion of this area may be an indication of contaminant migration to the east and southeast beneath the building or may be representative of drum processing operations. The latter scenario is supported by the presence of aromatic hydrocarbon contamination in soil adjacent to sewer basin No. 2 (test pit SE01), which accepted washdown water from operations within the northeast portion of the building, and in soil encountered in test pit TP01 located in the reported vicinity of sewer basin No. 3 (unknown location) which is believed to have received the effluent of Basin No. 2.

Aromatic hydrocarbon contamination in site soil located north and northeast of the Rhodes Drum facility is probably associated with past surface and subsurface disposal practices at the site based on waste encountered in test pit TP21 which included used skimmer belts, 5-gallon buckets and other debris. Aromatic hydrocarbons including xylene (total) (680 mg/kg) and toluene (5500 mg/kg) were detected in sample SD02 collected from former sewer basin No. 4 (east of Rhodes facility). Results indicate that aromatic hydrocarbon contamination detected in the eastern portion of the site has not migrated beyond the eastern property border.

Only one off-site soil boring (SB105) located northeast of the site and across Sixth Street was found to contain aromatic hydrocarbons, specifically benzene, at concentrations in excess of NJDEP soil cleanup criteria. Benzene in SB105 were found at concentrations in excess of both the NJDEP IGWSCC and

RDCSCC. No other samples in the vicinity of SB105 contain aromatic hydrocarbons in excess of NJDEP soil cleanup criteria. Based on this observation, the contamination identified in boring SB105 is interpreted as not site related.

6.5.2 Semi-Volatile Organics

Semi-volatile organic contamination appears to be widespread across the Martin Aaron property and extends beyond the property boundaries to the north, east, southeast, and west. Twelve semi-volatile organic compounds were detected in site surface and/or subsurface soil at concentrations in excess of one or more of the three NJDEP soil cleanup criteria. Semi-volatile compounds of concern include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene and naphthalene detected at concentrations above the RDCSCC. Each of these nine compounds, excluding naphthalene, were also detected above the NRDCSCC. Five compounds (acenaphthalene, benzo(b)fluoranthene, fluoranthene naphthalene, and pyrene) were detected at concentrations above IGWSCC.

Shaded and hatched areas on **Figure 19, Soil Results Above Criteria - Semivolatiles**, represent the estimated extent of semi-volatile organic (PAH) contamination in excess of each NJDEP soil cleanup criteria. Contaminant concentrations in excess of soil cleanup criteria were most frequently observed within the yard area of the Martin Aaron property north of the former and existing buildings, and in the northern half of the South Jersey Port. Corp. property across South Broadway. The apparent lack of significant semi-volatile contamination observed beneath the oldest portions of the former Martin Aaron building may indicate the source is associated with past disposal/filling operations as opposed to drum processing although contamination due to site operations has not been ruled out.

As shown on **Figure 19**, the horizontal extent of semi-volatile organic contamination at concentrations in excess of both the RDCSCC and NRDCSCC possibly emanating from the site extends to the limit of current sampling. Semi-volatile contamination at concentrations in excess of the NJDEP IGWSCC was identified at soil borings SB75 located in the northeast corner of the South Jersey Port Corp. property, SB88 located north of the site along Everett Street, SB112 located in the former one-story brick structure of the Martin Aaron building complex, SB23A located on the property along the east border and at one off-site location, boring SB132, located southeast of the property along sixth street. Phase III soil borings were advanced at strategic locations near and around the majority of the areas above the IGWSCC in an attempt to provide additional delineation. Based on the Phase III results, the estimated areas impacted above the IGWSCC were reduced and are shown as hatched areas on **Figure 19**.

Semi-volatile compounds detected at concentrations in excess of the most stringent NJDEP cleanup criteria within the site surface and subsurface soil consists mainly of polyaromatic hydrocarbons (PAH) which are generally associated with combustion and combustion by-products. Results indicate that the PAH contamination may be associated with the observed combustion by-products (ash and cinders) apparently used as fill across the site. This scenario is supported by the apparent lack of contamination identified beneath the southern portions of the former Martin Aaron building and southern portions of the South Jersey Port Corp. property where less combustion by-products were observed in the subsurface. The lack of contamination beneath the older (southern) portions of the former building may indicate the placement of the combustion products was probably after the original site buildings were constructed. Intrusive activities conducted as part of this investigation indicate the observed combustion product fill extends beyond the property borders in all directions. Past operations at the site may be the source of the combustion product. Several large smoke stacks were once located on the property.

Figure 29, Total Semivolatiles - Surface Soil and **Figure 30, Total Semivolatiles - Subsurface Soil**, present the distribution of total semivolatile concentrations. Increased total semivolatile results are presented through increased symbol size. These figures show that the majority of total semivolatile results in excess of 150 mg/kg were identified on the Martin Aaron property extending beyond the property border to the northeast, and in the northern portions of the South Jersey Port Corp. property. This distribution of semivolatile contamination supports the former use of the property for contaminant disposal and former use of the South Jersey Port Corp. Property.

6.5.3 Pesticides

Pesticide contamination, relative to semi-volatile and volatile contamination described above, appears to be less widespread across the Martin Aaron property. Four pesticide compounds were detected in site surface and/or subsurface soil at concentrations in excess of either the IGWSCC, RDCSCC or NRDCSCC. Pesticide compounds of concern include aldrin, dieldrin and heptachlor found in site surface and subsurface soil at concentrations in excess of NJDEP NRDCSCC. No pesticide compounds were detected at concentrations above IGWSCC.

Shaded and hatched areas on **Figure 20, Soil Results Above Criteria - Pesticides**, presents the estimated extent of pesticide contamination in excess of each NJDEP soil cleanup criteria. Based on sampling results, pesticides detected at concentrations in excess of the RDCSCC are generally confined to the site with the exception of surface and subsurface soil at soil boring location SB91 just across the north property border, and subsurface soil at soil boring SB69 located in the northern portions of the South Jersey Port property. The extent of contamination to the south of the Rhodes building cannot be determined due to a lack of sampling information on the southern adjacent property. However, no pesticides above NJDEP soil cleanup criteria were identified in Phase III borings advanced southeast of the site. The highest pesticide concentrations were identified in soil borings located immediately north and east of the former Martin Aaron building (SB04, SB05, SB08 and SB114) and immediately north of the Rhodes building (SB16) with contamination in soil borings SB04, SB05 and SB08 in excess of 100 times the current RDCSCC. Phase III delineation borings and sampling results indicate that the extent of contamination in excess of 100 times the RDCSCC is limited to the immediate area of these borings.

Contamination at soil boring SB91 is probably due to migration from the Martin Aaron property based on results of additional borings further north. Contamination identified on the South Jersey Port property may be indicative of former Martin Aaron operation activities on that property as discussed in Section 6.5.2 above.

When compared to the NRDCSCC, pesticide contamination is completely within the site property borders with the highest frequency of positive concentrations associated with the former buildings. Away from the buildings, pesticides in excess of the NRDCSCC are generally confined to surface soil.

6.5.4 PCB

Total PCB contamination within the site surface and subsurface soil extends across the Martin Aaron site. The horizontal extent of contamination is similar to the extent described for the pesticide contamination above. Shaded areas on **Figure 21, Soil Results Above Criteria - PCB**, presents the estimated extent of total PCB contamination in excess of each NJDEP soil cleanup criteria.

Based on sampling results, and as shown on **Figure 21**, total PCB contamination in excess of the RDCSCC extends from beneath the former processing areas of the former building north to the northern property line, northeast and east to the east and northeast property borders, and southeast to the southeast property border. Results indicate total PCB contamination in excess of the RDCSCC extends across the east and northeast property borders (surface soil) to at least soil boring SB106 located on the east side of Sixth Street. No other soil borings on the east side of sixth street contain total PCB in excess of the RDCSCC. One additional soil boring (SB89) located north of the property contains subsurface soil at concentrations in excess of the RDCSCC. Delineation of total PCB contamination in excess of the RDCSCC across the southern property border south of the former Rhodes building could not be accomplished due to the lack of sample information on the adjacent property. However, Phase III soil borings advanced southeast of the site along Sixth Street do not contain total PCBs in excess of NJDEP soil cleanup criteria.

When compared to the NRDCSCC, the extent of total PCB contamination in the site surface and subsurface soil is generally confined to the Martin Aaron property with the exception of one soil boring location (SB99, surface soil) located just beyond the east property border. Total PCB contamination at concentrations in excess of the NRDCSCC was most frequently identified adjacent to and north of the former and existing site structures with the highest concentrations at sample locations SB05, SB08, SB12, SE01 and TP05.

Total PCB concentrations in excess of the IGWSCC were detected at three sampling locations (TP05, SB08, TP09) on the Martin Aaron property. Results of field test kits were used in an attempt to delineate total PCB concentrations in excess of 50 mg/kg (TSCA regulated waste). Field test kit data experienced extreme matrix interference as reported by the Kimball chemist. Therefore, additional Phase III soil borings and associated laboratory analysis of soil samples were used to better delineate the extent of contamination in excess of 50 mg/kg. Phase III sampling and analysis has resulted in a better delineation of total PCBs in excess of 50 mg/kg and indicate that these areas are generally confined to the three sampling locations mentioned above. Hatched areas on **Figure 21** present the estimated extent of soil containing total PCBs in excess of 50 mg/kg.

The distribution of total PCB contamination presented in **Figure 21** suggests site process operations and past surface and subsurface disposal practices are the source. The distribution of observed concentrations away from the processing areas of the building suggest a combination of contaminant migration, filling operations and possible isolated disposal areas (north and east property borders) as the source of contamination across the site.

Total PCB concentrations in excess of the NJDEP soil cleanup criteria were not detected in samples collected from the South Jersey Port Corp. property.

6.5.5 Metals

Metals contamination is widespread across the Martin Aaron property extending beyond the property boundaries to the north, south, east, southeast, and west. Twelve analytes were detected in site surface and/or subsurface soil at concentrations in excess of the RDCSCC. The most common analytes detected above the RDCSCC, include arsenic, barium, cadmium, lead, antimony, beryllium and chromium. Analytes of additional concern include arsenic, beryllium, cadmium, chromium, copper, lead, thallium and zinc found in site and off-site surface and subsurface soil in excess of NJDEP NRDCSCC.

Figure 22, Soil Results Above Criteria - Metals, presents the estimated extent of metal contamination in excess of each NJDEP soil cleanup criteria. In general, metal contamination in excess of either the RDCSCC or NRDCSCC extends to the limits of current sampling. Based on current data, and as presented on **Figure 22**, the horizontal extent of metals contamination possibly emanating from the site has not been delineated to the west, north, east, south or southeast. When compared to NJDEP NRDCSCC, the extent of near surface and subsurface metal contamination is relatively unchanged. However, the extent of contamination above the NRDCSCC was found to be disproportionately attributed to high levels of arsenic and lead (over 150 and 51 surface and subsurface samples, respectively) with levels of other constituents found at concentrations above the NRDCSCC in only a fraction of the samples submitted (beryllium-14 samples, cadmium-1 sample, chromium-13 samples, copper-4 samples, thallium-4 samples, and zinc-31 samples).

Results indicate that the metal contamination may be associated with the observed fill (combustion by-products, ash and cinders) observed in soil borings and test pits across the site. This scenario is supported by the apparent lack of metal contamination at concentrations above NJDEP soil cleanup criteria, besides arsenic, identified beneath the southern portions of the former Martin Aaron building. With the exception of a few outlying analytes (barium and beryllium), contamination observed beneath the former Martin Aaron building generally consists of arsenic while contamination beneath the yard areas north of the building consists of a range of analytes including arsenic, barium, cadmium, lead, antimony, beryllium and chromium. The apparent lack of contamination, other than arsenic, beneath the building and the similarity of the distribution of the other analytes to the distribution of observed semi-volatile contamination may indicate the metals are associated with the fill material.

Figure 31 Arsenic Distribution - Surface Soil, and **Figure 32 Arsenic Distribution - Subsurface Soil**, present the distribution of arsenic identified by increasing symbol size. As shown on these figures, the distribution of arsenic relative to all sample locations indicates the highest concentrations in both the surface and subsurface soil are present on the site property extending across the north and east property border. Results indicate the arsenic contamination is site related and not a result of fill material. Shaded areas on **Figures 31** and **32** represent the estimated extent of surface and subsurface arsenic contamination in excess of 1000 mg/kg, respectively. This analysis shows that the arsenic contamination is much more prevalent in the subsurface soil with only one sample exceeding 1000 mg/kg in the surface soil.

6.5.6 Dioxin/Furan

No Dioxin/Furan analytes were detected at or above one mg/kg in soil samples submitted. **Figure 23, Dioxin/Furan Total Toxic Equivalent Results**, presents the sample locations and total toxic equivalent values for samples collected.

6.5.7 Tentatively Identified Compounds (TIC)

Tentatively Identified Compounds (TIC) were reported for the volatile and semi-volatile fractions of soil samples submitted for analysis. **Table 29 – Volatile TIC Frequency** and **Table 30 – Volatile TIC Maximum Concentrations**, present the most frequently observed and the maximum concentrations of soil volatile fraction TICs, respectively. Likewise, **Table 31 – Semi-Volatile TIC Frequency** and **Table 32 – Semi-Volatile TIC Maximum Concentrations**, present the most frequently observed and the maximum concentrations of soil semi-volatile fraction TICs, respectively.

In general, the most frequently reported TICs at the highest concentrations in the volatile fraction were unknown hydrocarbons, unknown aromatic hydrocarbons and ethyl-methyl-, trimethyl-, and dichloro-benzene isomers. The maximum TIC concentrations were generally found in soil samples collected in the former UST area north of the Martin Aaron building, the former processing areas of the building, and immediately north of the former Rhodes building.

The most frequently reported and highest concentrations in the semi-volatile fraction were unknown PAHs, unknown hydrocarbons, and various PAH isomers such as anthracene, naphthalene, and phenanthrene. The maximum TIC concentrations were generally found in the northeast portion of the South Jersey Port property and along the eastern border of the site.

6.6 Type and Distribution of Groundwater Contamination

Groundwater contamination was detected in both shallow (water table) and deep monitoring wells installed at the Martin Aaron site. Based on sampling results, groundwater contamination appears to be more prevalent in the shallow zone near the water table surface as opposed to deeper zones of the aquifer. Contaminant parameters detected in the shallow groundwater at concentrations above NJDEP Groundwater Quality Standards (GQS) include: chlorinated and aromatic volatile compounds; semi-volatile compounds; pesticides/PCBs and metals. Contaminant parameters detected in the deeper groundwater include chlorinated hydrocarbons, semi-volatiles and metals but with much fewer compounds and analytes at concentrations above GQS. Contaminants detected in the site groundwater generally correspond to but are not totally representative of the identified soil contaminants.

6.6.1 Volatile Organics

Volatile contamination within the shallow portion of the aquifer consists of a combination of aromatic compounds (benzene and xylene) and chlorinated hydrocarbons (tetrachloroethene and trichloroethene, and 1,2-dichloroethene) and is present to at least the west, east, and south property boundaries with low levels of chlorinated hydrocarbons found in downgradient well MW9S. It should be noted that more recent Phase III sampling of well MW9S did not identify any volatile compounds above NJDEP GQS. Aromatic compounds were found at highest levels in hydropunch sample location SB07 and monitoring wells MW5S, MW7S, and MW2S while the highest level of chlorinated hydrocarbons were again detected in hydropunch sample location SB07 and monitoring wells MW7S and MW5S. Although high levels were detected in hydropunch SB07, the results from new near-by monitoring well MW5S are considered more representative of site groundwater. Although a high concentration of vinyl chloride (13 ug/l) was detected in well MW3S, previous sampling of this well did not identify vinyl chloride above method detection limits and the results is considered suspect. No volatile compounds at concentrations above GQS were identified in apparent upgradient well MW1S, down-gradient well MW11S, or wells installed on the South Jersey Port Corp. property (MW4S and MW8S).

Results indicate a source of aromatic hydrocarbon contamination in the vicinity of shallow wells MW7S, MW5S, and MW6S, probably the underground tanks located just north of the former Martin Aaron building. Aromatic hydrocarbon contamination at concentrations above GQS was not identified in down-gradient wells MW10S, MW9S, MW3S or MW11S. Aromatic contamination in the site groundwater has not migrated to the off-site wells. Aromatic contamination identified in monitoring well MW2S may be the result of a secondary source given its distance from the underground tank area and presence of aromatic contamination in the near-by soil described in the previous sections.

Chlorinated hydrocarbon contamination identified in site wells MW7S and MW6S may be migrating south and southeast beyond the site borders as evidenced by contamination identified in monitoring wells MW3S and MW9S.

Only one volatile organic compound (tetrachloroethene) at a concentration above NJDEP GQS was identified in the deeper groundwater samples. Tetrachloroethene was detected in one sample (MW1M-2) from apparent upgradient monitoring well MW1M at an estimated concentration of 8 ug/l. This result is considered suspect due to the fact that results of analysis of a duplicate sample (MW1M-1) reported no tetrachloroethene above the method detection limit. Also, subsequent Phase III sampling results report no volatile compounds in excess of the NJDEP GQS. Results of analysis indicate detectable concentrations of cis-1,2-dichloroethene at levels below the current NJDEP GQS in wells MW1M, MW2M, MW3M and at hydropunch sample locations SB08 and SB09. Results indicate volatile concentrations are consistent across the site in the direction of apparent groundwater flow (northwest to southeast), suggesting the observed concentrations of cis-1,2-dichloroethene represent background conditions and/or a distant up-gradient source. This conclusion may be further justified by the fact that 1,2-dichloroethene represents a degradation product of tetrachloroethene. No volatile compounds at concentrations above GQS were detected in samples collected from monitoring well MW3M or hydropunch location SB29 located on the South Jersey Port Corp. property or from monitoring wells MW9D and MW11M located southeast of the property in the down-gradient direction.

Figure 25, Groundwater Results Above GQS - Organics, present sample locations and results of analysis above NJDEP GQS for all sampling events.

6.6.2 Semi-Volatile Organics

Semi-volatile contamination detected in the shallow groundwater consists mainly of naphthalene detected in up-gradient site well MW1S and down-gradient site well MW2S. Although naphthalene is present within the site soils, the fact that only these two wells contain this compound at levels above GQS and the wells are located at the western and eastern site property boundaries, respectively, no conclusions are drawn as to the relation of the observed contamination. Because the wells are separated by over 400 feet, the data indicate separate source areas. Naphthalene was also detected in well MW2M but at levels below GQS. The presence of the naphthalene may be an explanation of observed odor in both wells described in Section 5.0 above.

Only one semi-volatile compound was detected above GQS in the deeper groundwater samples. Down-gradient well MW11M was found to contain bis(2-ethylhexyl)phthalate at concentrations above the NJDEP GQS during the 2/17/00 sampling event. No other deep monitoring wells, including MW11M in the 1/18/00 sampling event, were found to contain semi-volatiles at concentrations above the NJDEP GQS. **Figure 25,** presents sample locations and results of analysis above NJDEP GQS.

6.6.3 Metals

Consistent with findings of the soil investigation, metals at concentrations above GQS were detected in each monitoring well sampled (shallow and deep) during each sampling round. In general, metals at concentrations above GQS were found to be more prevalent and at higher concentrations in the shallow groundwater zone. The most common analytes detected above GQS include aluminum, arsenic, iron, lead and manganese. Each of these analytes were found to be wide spread in the site surface and

subsurface soil. Results indicate the highest levels of individual metals in the shallow groundwater are within site wells MW1S, MW5S, MW7S, MW6S, and MW2S with lesser concentrations in apparent up-gradient wells MW8S and MW4S indicating an on-site source of contamination. Concentrations are also lower in down-gradient monitoring wells MW3S, MW9S and MW11S with concentrations of arsenic in wells MW9S and MW11S below the method detection limit. Results from down-gradient well MW10S indicate migration of contamination off-site to the east in the direction of apparent groundwater flow.

Analytes detected above GQS in the deeper groundwater zone consist of aluminum, arsenic, iron manganese and lead. Arsenic levels are highest in well MW2M (down-gradient) and is also present in well MW1M but at lesser levels indicating an on-site source of arsenic contamination. Arsenic was not detected above GQS in wells MW3M, MW9D and MW11M. Lead at concentrations above GQS was also detected in down-gradient wells MW2M and MW9D during the 11/10/98 sampling event, possibly indicating an on-site source. However, during the most recent Phase III sampling, lead was not detected above GQS in either well.

Figure 26, Groundwater Results Above GQS - Inorganics, presents sample locations and results of analysis above NJDEP GQS for all sampling events.

6.6.4 Pesticides/PCB

Pesticide and PCB contamination in the site shallow groundwater is limited to one occurrence of aldrin in well MW6S, one occurrence of dieldrin in down-gradient well MW11S, and one occurrence of total PCBs in well MW6S. Pesticide and PCB contamination identified during the Phase III sampling of site well MW6S could represent a mobilization of these contaminants as no other occurrences have been identified during the RI. The well is located along the east side of the former Martin Aaron building and near an identified area of elevated total PCB and pesticide soil contamination. Because of the wells location southeast of the site, the pesticide contamination identified in one of two sampling rounds of well MW11S is interpreted as being non-site related. **Figure 25**, presents sample locations and results of analysis above NJDEP GQS.

No pesticide/PCB compounds were detected above GQS in the site or off-site deep groundwater.

6.6.5 Off-site Production Well

Analytical results of samples collected from Camden City Well No. 7 found no volatile, semi-volatile, or pesticide/PCB compounds above GQS. Metals detected at concentrations above GQS include Iron and Manganese. Although these analytes are present in site soil and at concentrations above GQS in shallow and deep groundwater beneath the site, the distance between the City Well and the site prohibits the development of a relationship between observed contamination and site contamination at this time.

6.6.6 Tentatively Identified Compounds (TIC)

Tentatively Identified Compounds (TIC) were reported for the volatile and semi-volatile fractions of groundwater samples submitted for analysis. **Table 33 – Volatile TIC Frequency** and **Table 34 – Volatile TIC Maximum Concentrations**, present the most frequently observed and the maximum concentrations of groundwater volatile fraction TICs, respectively. Likewise, **Table 35 – Semi-Volatile TIC Frequency** and **Table 36 – Semi-Volatile TIC Maximum Concentrations**, present the most

frequently observed and the maximum concentrations of groundwater semi-volatile fraction TICs, respectively.

In general, the most frequently reported TICs at the highest concentrations in the volatile fraction were unknown oxygenated hydrocarbons, naphthalene isomers, butylbenzene isomers and chloro-, dichloro- and trimethyl benzene isomers. The maximum TIC concentrations were generally found in shallow groundwater samples collected along the east property border (MW2S) and in areas east and north of the former Martin Aaron building (MW5S and MW6S).

The most frequently reported and highest concentrations in the semi-volatile fraction were unknown oxygenated hydrocarbons, unknown carboxylic acids, and trimethyl benzene isomers. The maximum TIC concentrations were generally found near the east property border (MW2S) and in well MW8S on the South Jersey Port property.

6.7 Areas of Concern

Based on the findings discussed in Section 5.0 and the analyses of the nature and extent of contamination above, Kimball has identified areas of environmental concern for the Martin Aaron site.

1. Martin Aaron Property

This Area of Concern (AOC) includes the entire yard area of the Martin Aaron property, the remaining site buildings and other structures remaining. Near surface and subsurface soils throughout the yard area and extending beyond the site property borders contain organic and inorganic contamination in excess of NJDEP soil cleanup criteria. Contaminant concentrations vary greatly across the site with the areas of highest concentrations located near the site processing areas (buildings and former underground tanks). The nature and extent of contamination across the site indicate possible sources may include migration from former site processes within the buildings, migration from source areas near and beneath the buildings, fill material (combustion by-products) apparently used across the property, and/or past surface and subsurface disposal practices (especially along the north and east property borders). Intrusive activities identified possible former disposal areas throughout the yard area of the site containing drum liners, drum rings, partial drums, used protective equipment, 5-gallon buckets, and skimmer belts. Former disposal areas were confirmed along the north and east property borders at sample locations TP08, TP09, TP11, TP21 and TP24. One additional disposal area was identified near magnetic anomaly M3 between the former Rhodes and Martin Aaron buildings where buried containerized wastes were confirmed by the NJDEP. Extensive drum burial, as previously reported, was not evidenced in current excavations.

Results indicate organic constituents in the site near surface and subsurface soil at concentrations in excess of NJDEP soil cleanup criteria extend at least to the property borders and across property borders to the east, northeast, and probably south. Organic contaminants found at concentrations in excess of NJDEP soil cleanup criteria include chlorinated and aromatic volatile compounds, semi volatile compounds consisting of polyaromatic hydrocarbons (PAH), pesticides, and PCBs. The site property is evaluated as high environmental concern due to the extent of identified contamination.

Inorganic contamination in the near and subsurface soil at concentrations above NJDEP soil cleanup criteria extends to the limit of current sampling completed to date. However, results indicate that the apparent extent of contamination is disproportionately attributable to arsenic at concentrations above the

NRDCSCC. This fact is also evident beneath the former Martin Aaron building and south where the majority of the inorganic contamination is the result of arsenic.

Based on the results of the RI, the following specific Areas of Concern within the Martin Aaron property AOC have been identified:

- a. **Volatile Organic Hot Spots** – This area of concern includes the shaded areas shown on **Figures 27 and 28** which represent the estimated extent of total volatile organic contamination in excess of 1000 mg/kg in site surface and subsurface soil, respectively. These areas are of high concern in regard to possible source areas for continued groundwater contamination. A portion of this area has already been addressed as part of UST removal actions completed by the NJDEP in the summer of 1999.
- b. **Semi-Volatile Organic Hot Spots** – This area of concern includes the hatched areas on **Figure 19** which represents the estimated extent of surface and subsurface semi-volatile contamination in excess of the NJDEP IGWSCC. These areas are of high concern in regard to possible source areas for continued groundwater contamination.
- c. **Pesticide Hot Spots** – This area of concern includes surface and subsurface soil in the immediate vicinity of soil borings SB04, SB05 and SB08 where pesticide concentrations exceed 100 times the current RDCSCC.
- d. **PCB Hot Spots** – This area of concern includes the hatched areas on **Figure 21** which represent the estimated extent of surface and subsurface soil total PCB contamination in excess of 50 mg/kg. Total PCB concentrations in excess of 50 mg/kg represent Toxic Substance Control Act [TSCA] regulated waste.
- e. **Inorganic Hot Spots** – This area of concern includes the shaded areas shown on **Figure 32** which represents the estimated extent of arsenic contamination at concentrations above 1000 mg/kg. These areas are of high concern in regard to possible source areas for continued groundwater contamination and also as an indicator of the most highly contaminated areas of the site with regard to inorganic parameters.
- f. **Test Pit 24** – This area of concern is represented by test pit 24 (TP24) located west of the former UST area and north of the former Martin Aaron building. A vertical 8-inch diameter pipe (possible former well) was identified during the test pit excavation. This structure is of high concern with regard to vertical migration of site contamination.
- g. **Buried Containerized Waste** – This area of concern is located between the former Rhodes and Martin Aaron buildings within magnetic anomaly M3. Some buried containers were discovered during the NJDEP UST removal actions in 1999. This area is considered a high concern in as a continuing source of soil and groundwater contamination.

2. South Jersey Port Corporation Property

This area of concern includes the South Jersey Port Corporation property (Block 458, Lot 15) located west of the Martin Aaron property on the west side of Broadway. Soil sampling completed on this property has identified soil contamination thought to be representative of former drum handling activities by the Martin Aaron operations. Organic contamination consists mainly of semi-volatile compounds similar to those identified on the Martin Aaron property (PAH). Inorganic contamination in the area soil is similar to contamination identified on the Martin Aaron property consisting of arsenic, barium, cadmium and lead at concentrations above NJDEP cleanup criteria. Analysis of the total semivolatile concentrations and individual metal concentrations indicate higher contamination levels are more frequently observed in the northern portions of the property. The South Jersey Port Corporation

property is evaluated as high concern with respect to the contamination identified in the northern portions of the site and the extent of contamination on the property due to past drum storage and drum transfer use. Of particular concern is the area of semi-volatile contamination at concentrations in excess of the IGWSCC. This area is represented by the hatched pattern presented on **Figure 19**.

3. Study Area Groundwater

Shallow groundwater contamination identified at the Martin Aaron site extends across the property and beyond the property borders to the east, south, and west. Based on sampling results, groundwater contamination is more prevalent in the shallow zone near the water table surface as opposed to deeper zones of the aquifer. Contaminant parameters detected in the shallow groundwater at concentrations above NJDEP Groundwater Quality Standards (GQS) include: chlorinated and aromatic volatile compounds; semi-volatile compounds; and metals. Both semi-volatile compounds and metals were detected in apparent up-gradient well MW1S indicating a possible off-site source or local point source of contamination in this well. Contaminants detected in the site shallow groundwater generally correspond to but are not totally representative of the identified soil contaminants. The shallow groundwater is evaluated as medium concern based on the limited down-gradient migration of observed contamination and as a possible mechanism for site contamination horizontal migration and vertical migration to deeper groundwater.

Contaminant parameters detected in the deeper groundwater include chlorinated hydrocarbons and metals but with much fewer compounds and analytes at concentrations above GQS. Deep groundwater beneath the site is evaluated as low environmental concern because impacts of site contamination (except for metals) are not readily apparent.

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 Conclusions

Based on the findings presented in Section 5.0 and the analyses of the nature and extent of contamination presented in Section 6.0, Kimball has developed the following conclusions:

A. Site Geology/Hydrogeology

The majority of the top and subsoils on the Martin Aaron property have been removed and replaced with various fill materials including construction debris, ashes and cinders, slag type material, and in some cases, wood and other refuse.

The unconsolidated sediments immediately beneath the fill consist primarily of sands and gravels with intervals of silts and clay (Magothy Formation). On-site borings evidence the existence of this formation, which was initially encountered at an approximate depth of ten (10) feet, and ranged in thickness from fifty (50) to fifty two (52) feet.

Shallow groundwater flow within the upper aquifer is believed to be to the east and southeast. However, building foundations and subsurface structures are believed to influence the movement of on-site shallow water. Secondary flow patterns may exist within the site boundaries resulting in migration (horizontal and/or vertical) pathways and/or velocities different than predicted from static water elevation measurements. Deeper groundwater flow within the upper aquifer appears to be to the southeast along the dip of the local formations. Static groundwater elevations indicate the potential for vertical groundwater migration beneath the site.

B. Former Disposal Practices

Test pits excavated at interpreted geophysical anomalies generally encountered fill consisting of ash, cinders, brick, concrete, scrap metal, etc., at all excavation locations. Several excavations confirmed historical reports of former buildings with the discovery of subsurface footings, pipe runs, and other subsurface structures including a subsurface concrete pad or possible vault and vertical 8- inch diameter pipe (possible former well) at test pit TP24. The majority of test pits revealed the probable cause of observed geophysical anomalies. Subsurface disposal areas were confirmed at test pit locations TP08 located in the north central portion of the yard area, TP11 located in the northeast portion of the property and TP21 located just east of the Rhodes operations with the discovery of buried drum rings, boots, and gloves in test pit TP08, drum liners, gloves and drum rings in test pit TP11 and skimmer belts, drum liners, buckets, and solid product (white solid) in test pits TP21 and TP23.

Results of the test pit excavation activities and recent removal activities conducted by the NJDEP indicate that past subsurface disposal practices are evident and containerized wastes are buried at the site. Some drums were excavated by the NJDEP in the vicinity of geophysical anomaly M3 in the summer of 1999. However, findings of the intrusive investigation do not support reports of widespread drum burial.

C. Sewer Basins

Except for some loose bricks encountered near the top of sewer basin 4, both basins appeared to be competent and intact to the depth excavated. No leaks were evident from the piping exposed. Soil adjacent to basin 2 was observed to be stained and exhibited a strong odor. It is uncertain whether observed staining is the direct result of discharges from the basin or general site operations. Results of soil samples from the excavation adjacent to sewer basin 2 indicates chlorinated hydrocarbons and aromatics at concentrations in excess of the IGWSCC. These results are similar to results found in soil beneath the entire processing area of the former Martin Aaron building complex.

Sediment samples collected from former basin numbers 1 (within the former Martin Aaron building) and 4 were found to contain chlorinated and aromatic volatile compounds, and metals at concentrations above NJDEP soil cleanup criteria. Compounds and analytes detected are consistent with constituents found in the site soil and groundwater. As mentioned above, chlorinated and aromatic volatile compounds and metals have been identified throughout the property. Results of soil sampling adjacent to Basins 2 and 4 do not indicate that the basins are major sources of the site contamination, relative to results of sampling within the process areas, but probably are contributing.

D. Underground Storage Tanks

Soil and groundwater investigations conducted in the vicinity of the underground storage tanks (USTs) located immediately north (three known USTs) and east (one UST) of the former Martin Aaron building found evidence of impacts attributable to past leaks and spills. During the Summer of 1999, the NJDEP completed a removal action of all on-site USTs and associated soil. The following assessment is based on data collected prior to the removal actions.

Investigations around the three former USTs located north of the Martin Aaron building evidenced strong fuel odors from two to three feet below ground surface up to a maximum depth of sixteen feet below ground surface. At depths between six and eight feet below ground surface, an oily sheen was observed in the site soil. Based on the investigation activities, the impacts from the USTs located north of the building extend north to at least boring VOA1, to the west no further than boring SB02, and to the south no further than boring SB112. To the east, aromatic hydrocarbons are present above NJDEP soil cleanup criteria in borings SB33 and SB31 advanced within the former building, SB05 and SB08 advanced just north of the building, and SB12, SE01, and TP01 located east of the building. This trend in contamination, which corresponds closely to the shallow groundwater gradient, probably indicates the extent of impacts attributable to the USTs.

Aromatic compounds were detected at concentrations above NJDEP GQS in shallow groundwater monitoring wells MW7S (formerly located adjacent to the USTs), MW6S located east of the tank area, MW5S located northeast of the tank area, and MW2S located along the east property border. Based on the current data, contamination in wells MW5S, MW7S and MW6S is interpreted as being attributable to the UST area. Contamination found in well MW2S is probably due to a more local source as described in subsequent Sections below.

Investigations completed around the one UST formerly located east of the former Martin Aaron building found no evidence of impacts attributable to the UST.

E. Soil Contamination

1. Volatile Organics

Volatile organic contamination is widespread across the Martin Aaron property and was found to extend beyond the property borders to the northeast, east and possibly to the southeast. Seventeen volatile organic compounds were detected in site surface and/or subsurface soil at concentrations in excess of at least one of the three NJDEP soil cleanup criteria. Volatile compounds of concern include 1,2-dichloroethane, 1,2-dichloroethene (total), 1,2-dichloropropane, benzene, styrene, tetrachloroethene, toluene, trichloroethene, vinyl chloride and xylene (total) found in site surface and/or subsurface soil at concentrations in excess of the NJDEP RDCSCC. Volatile compounds detected at concentrations in excess of the NJDEP NRDCSCC include 1,2-dichloroethane, 1,2-dichloropropane, benzene, tetrachloroethene, toluene, trichloroethene, vinyl chloride and xylene (total). In general, volatile compound concentrations in site soil were found to decrease with depth across the site. However, the frequency of occurrence and number of compounds detected generally increase with depth.

Based on sampling results, chlorinated volatile compounds detected at concentrations in excess of either the IGWSCC, RDCSCC or NRDCSCC are present across the entire Martin Aaron property and extend beyond the property boundaries to the northeast, east, and possibly south. Aromatic hydrocarbon compounds detected at concentrations in excess of NJDEP soil cleanup criteria are generally located in two areas: around the former underground storage tanks immediately north of the former Martin Aaron building extending east beneath the processing area of the building and an area northeast of the Rhodes Drum building. Aromatic hydrocarbon soil contamination does not extend beyond the property borders.

Total volatile concentrations in excess of NJDEP criteria for total volatile compounds (1000 ppm) were identified in surface and subsurface soil beneath the northern portions of the Martin Aaron building (processing area) and the yard area just north of the building, and in subsurface soil immediately north and east of the former Rhodes building. The eastern most sample containing total volatiles above 1000 mg/kg was collected along the south property border.

2. Semi-Volatile Organics

Semi-volatile organic contamination appears to be widespread across the Martin Aaron property and extends beyond the property boundaries to the north, east, southeast, and west. Twelve semi-volatile organic compounds were detected in site surface and/or subsurface soil at concentrations in excess of one or more of the three NJDEP soil cleanup criteria. Semi-volatile compounds of concern generally include benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, bis(2-ethylhexyl)phthalate, chrysene, dibenz(a,h)anthracene, indeno(1,2,3-cd)pyrene and naphthalene detected at concentrations above the RDCSCC. Each of these nine compounds, excluding naphthalene, were also detected above the NRDCSCC. Five compounds (acenaphthalene, benzo(b)fluoranthene, fluoranthene naphthalene, and pyrene) were detected at concentrations above IGWSCC.

The horizontal extent of semi-volatile organic contamination at concentrations in excess of both the RDCSCC and NRDCSCC possibly emanating from the site extends to the limit of current sampling. Semi-volatile contamination at concentrations in excess of the NJDEP IGWSCC was identified in the northeast corner of the South Jersey Port Corp. property, north of the site along Everett Street, in the former one-story brick structure of the Martin Aaron building complex, on the property along the east border and at one off-site location located southeast of the property along sixth street.

Semi-volatile compounds detected at concentrations in excess of the most stringent NJDEP cleanup criteria within the site surface and subsurface soil consists mainly of polycyclic aromatic hydrocarbons (PAH) which are generally associated with combustion and combustion by-products. Results indicate that the PAH contamination may be associated with the observed combustion by-products (ash and cinders) apparently used as fill across the site. This scenario is supported by the apparent lack of contamination identified beneath the southern portions of the former Martin Aaron building and southern portions of the South Jersey Port Corp. property where less combustion by-products were observed in the subsurface. The lack of contamination beneath the older (southern) portions of the former building may indicate the placement of the combustion products was probably after the original site buildings were constructed. Intrusive activities conducted as part of this investigation indicate the observed combustion product fill extends beyond the property borders in all directions. Past operations at the site may be the source of the combustion product. Several large smoke stacks were once located on the property as evidenced in historical aerial photos and Sanborne maps.

The majority of total semivolatile results in excess of 150 mg/kg were identified on the Martin Aaron property extending beyond the property border to the northeast, and in the northern portions of the South Jersey Port Corp. property. This distribution of semivolatile contamination supports the former use of the property for contaminant disposal and former use of the South Jersey Port Corp. Property.

3. Pesticides

Pesticide contamination, relative to semi-volatile and volatile contamination described above, appears to be less widespread across the Martin Aaron property. Four pesticide compounds were detected in site surface and/or subsurface soil at concentrations in excess of either the IGWSCC, RDCSCC or NRDCSCC. Pesticide compounds of concern include aldrin, dieldrin and heptachlor found in site surface and subsurface soil at concentrations in excess of NJDEP NRDCSCC. No pesticide compounds were detected at concentrations above IGWSCC.

Pesticides detected at concentrations in excess of the RDCSCC are generally confined to the site with the exception of surface and subsurface soil just across the north property border, and subsurface soil located in the northern portions of the South Jersey Port property. The highest pesticide concentrations were identified in soil borings located immediately north and east of the former Martin Aaron building and immediately north of the Rhodes building with contamination in excess of 100 times the current RDCSCC.

When compared to the NRDCSCC, pesticide contamination is completely within the site property borders with the highest frequency of positive concentrations associated with the former buildings. Away from the buildings, pesticides in excess of the NRDCSCC are generally confined to surface soil.

4. PCB

Total PCB contamination within the site surface and subsurface soil extends across the Martin Aaron site. The horizontal extent of contamination is similar to the extent described for the pesticide contamination above

Total PCB contamination in excess of the RDCSCC extends from beneath the former processing areas of the former building north to the northern property line, northeast and east to the east and northeast

property borders, and southeast to the southeast property border. Results indicate total PCB contamination in excess of the RDCSCC extends across the east and northeast property borders (surface soil) to at least the east side of Sixth Street.

When compared to the NRDCSCC, the extent of total PCB contamination in the site surface and subsurface soil is generally confined to the Martin Aaron property with the exception of one soil boring location just beyond the east property border. Total PCB contamination at concentrations in excess of the NRDCSCC was most frequently identified adjacent to and north of the former and existing site structures

Total PCB concentrations in excess of the IGWSCC were detected at three sampling locations on the Martin Aaron property. The distribution of total PCB contamination suggests site process operations and past surface and subsurface disposal practices are the source. The distribution of observed concentrations away from the processing areas of the building suggest a combination of contaminant migration, filling operations and possible isolated disposal areas (north and east property borders) as the source of contamination across the site.

Total PCB concentrations in excess of the NJDEP soil cleanup criteria were not detected in samples collected from the South Jersey Port Corp. property.

5. Metals

Metals contamination is widespread across the Martin Aaron property extending beyond the property boundaries to the north, south, east, southeast, and west. The most common analytes detected above the RDCSCC, include arsenic, barium, cadmium, lead, antimony, beryllium and chromium. Analytes of additional concern include arsenic, beryllium, cadmium, chromium, copper, lead, thallium and zinc found in site and off-site surface and subsurface soil at concentrations in excess of NJDEP NRDCSCC.

Metal contamination in excess of either the RDCSCC or NRDCSCC extends to the limits of current sampling. The horizontal extent of metals contamination possibly emanating from the site has not been delineated to the west, north, east, south or southeast. When compared to NJDEP NRDCSCC, the extent of near surface and subsurface metal contamination is relatively unchanged. However, the extent of contamination above the NRDCSCC was found to be disproportionately attributed to high levels of arsenic and lead (over 150 and 51 surface and subsurface samples, respectively) with levels of other constituents found at concentrations above the NRDCSCC in only a fraction of the samples submitted.

Results indicate that the metal contamination may be associated with the observed fill (combustion by-products, ash and cinders) observed in soil borings and test pits across the site. This scenario is supported by the apparent lack of metal contamination at concentrations above NJDEP soil cleanup criteria, besides arsenic, identified beneath the southern portions of the former Martin Aaron building. The distribution of arsenic relative to all sample locations indicates the highest concentrations in both the surface and subsurface soil are present on the site property extending across the north and east property border. Results indicate the arsenic contamination is site related and not a result of fill material.

6. Dioxin/Furan

No Dioxin/Furan analytes were detected at or above one mg/kg in soil samples submitted

F. Groundwater Contamination

1. Volatile Organics

Volatile contamination within the shallow portion of the aquifer consists of a combination of aromatic compounds (benzene and xylene) and chlorinated hydrocarbons (tetrachloroethene and trichloroethene, and 1,2-dichloroethene) and is present to at least the west, east, and south property boundaries with low levels of chlorinated hydrocarbons found in downgradient well MW9S. Aromatic compounds were found at highest levels in monitoring wells MW5S, MW7S, and MW2S while the highest level of chlorinated hydrocarbons were detected in monitoring wells MW7S and MW5S. No volatile compounds at concentrations above GQS were identified in apparent upgradient well MW1S, down-gradient well MW11S, or wells installed on the South Jersey Port Corp. property (MW4S and MW8S).

Results indicate a source of aromatic hydrocarbon contamination in the vicinity of shallow wells MW7S, MW5S, and MW6S, probably the former underground tanks located just north of the former Martin Aaron building. Aromatic hydrocarbon contamination at concentrations above GQS was not identified in down-gradient wells MW10S, MW9S, MW3S or MW11S. Aromatic contamination in the site groundwater has not migrated to the off-site wells. Aromatic contamination identified in monitoring well MW2S may be the result of a secondary source given its distance from the underground tank area and presence of aromatic contamination in the near-by soil described in the previous sections.

Chlorinated hydrocarbon contamination identified in site wells MW7S and MW6S may be migrating south and southeast beyond the site borders as evidenced by contamination identified in monitoring wells MW3S and MW9S.

Only one volatile organic compound (tetrachloroethene) at a concentration above NJDEP GQS was identified in the deeper groundwater samples. No volatile compounds at concentrations above GQS were detected in samples collected from down-gradient monitoring wells MW3M, MW9D and MW11M.

2. Semi-Volatile Organics

Semi-volatile contamination detected in the shallow groundwater consists mainly of naphthalene detected in up-gradient site well MW1S and down-gradient site well MW2S. Although naphthalene is present within the site soils, the fact that only these two wells contain this compound at levels above GQS and the wells are located at the western and eastern site property boundaries, respectively, no conclusions are drawn as to the relation of the observed contamination. Because the wells are separated by over 400 feet, the data indicate separate source areas.

Only one semi-volatile compound was detected above GQS in the deeper groundwater samples. Down-gradient well MW11M was found to contain bis(2-ethylhexyl)phthalate at concentrations above the NJDEP GQS during the 2/17/00 sampling event. No other deep monitoring wells, including MW11M in the 1/18/00 sampling event, were found to contain semi-volatiles at concentrations above the NJDEP GQS.

3. Metals

Consistent with findings of the soil investigation, metals at concentrations above GQS were detected in each monitoring well sampled (shallow and deep) during each sampling round. In general, metals at concentrations above GQS were found to be more prevalent and at higher concentrations in the shallow groundwater zone. The most common analytes detected above GQS include aluminum, arsenic, iron, lead and manganese. Each of these analytes were found to be wide spread in the site surface and subsurface soil. Results indicate the highest levels of individual metals in the shallow groundwater are within site wells MW1S, MW5S, MW7S, MW6S, and MW2S with lesser concentrations in apparent up-gradient wells MW8S and MW4S indicating an on-site source of contamination. Concentrations are also lower in down-gradient monitoring wells MW3S, MW9S and MW11S with concentrations of arsenic in wells MW9S and MW11S below the method detection limit. Results from down-gradient well MW10S indicate migration of contamination off-site to the east in the direction of apparent groundwater flow.

Analytes detected above GQS in the deeper groundwater zone consist of aluminum, arsenic, iron manganese and lead. Arsenic levels are highest in well MW2M (down-gradient) and is also present in well MW1M but at lesser levels indicating an on-site source of arsenic contamination. Arsenic was not detected above GQS in wells MW3M, MW9D and MW11M. Lead at concentrations above GQS was also detected in down-gradient wells MW2M and MW9D during the 11/10/98 sampling event, possibly indicating an on-site source.

4. Pesticides/PCB

Pesticide and PCB contamination in the site shallow groundwater is limited to one occurrence of aldrin in well MW6S, one occurrence of dieldrin in down-gradient well MW11S, and one occurrence of total PCBs in well MW6S.

No pesticide/PCB compounds were detected above GQS in the site or off-site deep groundwater.

5. Off-site Production Well

Analytical results of samples collected from Camden City Well No. 7 found no volatile, semi-volatile, or pesticide/PCB compounds above GQS

G. Areas of Concern

1. Martin Aaron Property

This Area of Concern (AOC) includes the entire yard area of the Martin Aaron property, the remaining site buildings and other structures remaining. Near surface and subsurface soils throughout the yard area and extending beyond the site property borders contain organic and inorganic contamination in excess of NJDEP soil cleanup criteria

Based on the results of the RI, the following specific Areas of Concern within the Martin Aaron property AOC have been identified:

- a. **Volatile Organic Hot Spots** – This area of concern includes the estimated extent of total volatile organic contamination in excess of 1000 mg/kg in site surface and subsurface soil, respectively.
- b. **Semi-Volatile Organic Hot Spots** – This area of concern includes the estimated extent of surface and subsurface semi-volatile contamination in excess of the NJDEP IGWSCC.
- c. **Pesticide Hot Spots** – This area of concern includes surface and subsurface soil in the immediate vicinity of soil borings SB04, SB05 and SB08 where pesticide concentrations exceed 100 times the current RDCSCC.
- d. **PCB Hot Spots** – This area of concern includes the estimated extent of surface and subsurface soil total PCB contamination in excess of 50 mg/kg.
- e. **Inorganic Hot Spots** – This area of concern includes the estimated extent of arsenic contamination at concentrations above 1000 mg/kg.
- f. **Test Pit 24** – This area of concern is represented by a vertical 8-inch diameter pipe (possible former well) identified during the test pit excavation.
- g. **Buried Containerized Waste** – This area of concern consists of some buried containers discovered during the NJDEP UST removal actions in 1999.

2. South Jersey Port Corporation Property

This area of concern includes the South Jersey Port Corporation property (Block 458, Lot 15) located west of the Martin Aaron property on the west side of Broadway. Soil contamination thought to be representative of former drum handling activities by the Martin Aaron operations is present on the property. Organic contamination consists mainly of semi-volatile compounds and inorganic contamination is similar to contamination identified on the Martin Aaron property consisting of arsenic, barium, cadmium and lead. Of particular concern is the area of semi-volatile contamination at concentrations in excess of the IGWSCC.

3. Study Area Groundwater

Shallow groundwater contamination identified at the Martin Aaron site extends across the property and beyond the property borders to the east, south, and west. The shallow groundwater is evaluated as medium concern based on the limited down-gradient migration of observed contamination and as a possible mechanism for site contamination horizontal migration and vertical migration to deeper groundwater.

Contaminant parameters detected in the deeper groundwater include chlorinated hydrocarbons and metals but with much fewer compounds and analytes at concentrations above GQS. Deep groundwater beneath the site is evaluated as low environmental concern because impacts of site contamination (except for metals) are not readily apparent.

7.2 Recommendations

Based on the conclusions of this investigation, the following recommendations are presented for the Martin Aaron site:

Soil

1. Because inorganic and organic contamination has not been delineated across the south property border, an additional five soil borings should be advanced on the property south of the former Rhodes building (Block 460, Lot 29) as originally planned during the second investigation phase. Two samples should be collected from each boring and submitted for analysis of TCL volatiles +10, TCL semi-volatiles+20, pesticide/PCB, and TAL metals.

This additional investigation is required to fully delineate the extent of contamination migrating beyond the property borders to the south. The additional investigation should take place prior to final selection of a Remedial Alternative for the Martin Aaron site. However, based on current sampling and contamination delineation, delays in the performance of this sampling should not delay the evaluation of site remedies.

2. Because the extent of site soil contamination has generally been delineated (except as described above) and hot spots identified, no further site soil investigations are recommended at this time.

3. Remedial alternative should be evaluated for the site soil contamination with emphasis on the identified hot spots.

Groundwater

1. Because identified site groundwater contamination is generally contained to the on-site wells, with the exception of low level organics and metals, no further groundwater investigations are recommended at this time. Monitoring wells MW11S and MW11M should be used as future sentinel wells for the evaluation of possible contaminant migration and monitoring of remediation activities.

2. Remedial alternatives should be evaluated for the site shallow groundwater contamination with emphasis on the remediation of soil hot spots evaluated as continuing sources of groundwater contamination.

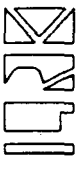
8.0 REFERENCES

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BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB01
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.91	TOP OF CASING: --	WEATHER: Overcast, warm
DRILLING CO: JCA	DRILLER: J. Urban	LK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 07/10/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 07/10/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	27 30 32 18	0.9	7.9		0.0'-2.0' FILL: dark brown, sand, cinders, brick chips, pebbles, angular	
		S-2	100	0.5	0.0		2.0'-4.0' FILL: brick, cinders, slag, dark brown sand	0.0'-0.5' SB01-1 CLPSV, TAL, CN, PEST/PCB 0.0'-2.0' SB01-2 CLPVOA
150	5.0	S-3 (6)	100	1.0	0.0		4.0'-6.0' FILL: brick, cinders, slag, dark brown sand, conc.	4.0'-6.0' SB01-3 CLPSV, TAL, CN, PEST/PCB TOX, TOC, particle size
		S-4	7 8 8 10	1.3	597		6.0'-8.0' SAND: dark brown, cinders, ash slag, gravel, brick pieces	7.0'-7.5' SB01-4 CLPVOA
							Hydropunch	
							TOTAL DEPTH = 9.0 FEET	5.0'-9.0' SB01-5 VO (8240)
100	10.0							
150	15.0							
185	18.5							
200	20.0							
100								

300099

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB2
PROJECT: MARTIN AARON RI/RAA
PROJECT NO: 96-1322-A124

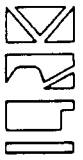
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DRILLING CO: JCA DRILLER: J Urban LRK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger RIG TYPE: Failing
DATE STARTED: 7/16/97 WATER LEVEL DEPTH: N/A FT: N/A DATE: N/A
COMPLETED: 7/16/97 N/A FT: N/A DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	25 10	0.8	0.0		0.0'-0.3' CONCRETE	0.3'-1.0' SB2-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan 1.5'-2.0' SB2-2 CLPVOA
		S-2	4 3 3 4	0.3	0.0		0.3'-1.5' SAND: fine, green-gray, pebbles small to large rounded 1.5'-2.0' SAND: coarse, gray, conc.	
							2.0'-4.0' FILL: sand, coarse, black to gray	
195	5.0	S-3	17 7 9 6	0.5	0.0		4.0'-6.0' SAND: coarse-medium, black, cinders, pebbles - angular damp	
		S-4	1 1 1 7	1.0	1.8		6.0'-7.5' SAND: coarse-medium, black, cinders, pebbles 7.5'-8.0' SANDY CLAY: gray, saturated	
							TOTAL DEPTH = 8.0 FEET	6.5'-7.5' SB2-3 CLPSV, TAL, CN, PEST/PCB CLPVOA
190	10.0							
185	15.0							
180	20.0							

300100

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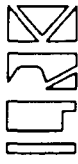
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LOCATION: <u>Martin Aaron Site</u>						COORD EAST: <u>-</u>		NORTH: <u>-</u>	
SURFACE ELEV: <u>201.82</u>						TOP OF CASING: <u>--</u>		WEATHER: <u>Overcast, warm</u>	
DRILLING CO: <u>JCA</u>						DRILLER: <u>J. Urban</u>		LRK INSPECTOR: <u>W. Stenger</u>	
DRILLING METHOD: <u>Hollow Stem Auger</u>						RIG TYPE: <u>Failrig</u>			
DATE STARTED: <u>07/10/97</u>						WATER LEVEL DEPTH: <u>N/A</u>		FT: <u>N/A</u> DATE: <u>N/A</u>	
COMPLETED: <u>07/10/97</u>						N/A		FT: <u>N/A</u> DATE: <u>N/A</u>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	5	0.8	0.0		0.0'-2.0' FILL: sand, medium, tan to dark brown, pebbles, angular, cinders, slag	0.0'-0.5' SB03-1 CLPSV, TAL, CN, PEST/PCB 0.5'-2.0' SB03-2 CLPVOA 4.0'-6.0' SB03-3 CLPSV, TAL, CN, PEST/PCB, CLPVOA TOX, TOC, PART.
	13							
	17							
150		S-2	12	1.2	641		2.0'-4.0' FILL: cinders, brick, sand with blue and red flecks, odor	
	16							
	24							
100		S-3	8	1.3	114		4.0'-6.0' SAND: coarse, black, cinders, ash, green granular material, brick, pieces, Wet @ 6.0' (water in hole)	
	6							
	4							
50			3					
0							TOTAL DEPTH = 6.0 FEET	

300101

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB4 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124																	
LOCATION: Martin Aaron Site						COORD EAST: -						NORTH: -											
SURFACE ELEV: 202.13						TOP OF CASING: --						WEATHER: Sunny, hot, 100 degs. F.											
DRILLING CO: JCA						DRILLER: J. Urban						LRK INSPECTOR: W. Stenger											
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing																	
DATE STARTED: 7/16/97						WATER LEVEL DEPTH: N/A						FT: TIME: N/A						DATE: N/A					
COMPLETED: 7/16/97						N/A						FT: TIME: N/A						DATE: N/A					

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0							
		S-1	63 75 100 81	2.0			0.0'-1.5' FILL: sand, stones 1.5'-2.0' SAND: fine, tight, green-gray, pebbles, blue flecks, brick pieces	0.0'-0.5' SB4-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan 1.5'-2.0' SB4-2 CLPYOA 3.0'-4.0' SB4-3 CLPSV, TAL, CN, PEST/PCB CLPYOA
		S-2	15 17 8 4	1.3	1648		2.0'-4.0' SAND: medium-fine, mottled, brown/green/gray/tan, last 0.3' coarse tan sand	
	5.0	S-3	6 2 12 25	1.0	168		4.0'-6.0' SAND: medium-fine, mottled, green and tan, cinders, 5.0'-6.0' wood pieces	
	175	S-4	5 4 9 18	0.8	528		6.0'-8.0' SAND: medium-coarse, black with lenses of green sand @ 7.5', wood @ bottom, wet @ 7.5'	
							TOTAL DEPTH = 8.0 FEET	
190	10.0							
185	15.0							
180	20.0							

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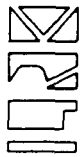
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	615 W HIGHLAND AVE P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 202.31	TOP OF CASING: --	WEATHER: Overcast, warm
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 07/10/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A DATE: N/A
COMPLETED: 07/10/97	N/A	FT: TIME: N/A DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.4" CONCRETE	
		S-1	12 18 30	0.8	427		0.4'-2.0' SAND: black, coarse, cinders, slag, gray, pebbles, angular, strong odor, degraded asphalt	Augered through 4" of concrete prior to spooning S-1
		S-2	12 15 6 6	0.9	68		2.0'-4.0' SAND: coarse-medium, black-green cobbles, angular, gray, odor	
	5.0	S-3	5 6 12 11	1.3	487		4.0'-5.0' SAND: medium, green/black, pebbles, angular odor	0.4'-1.0' SB05-1 CLPSV, TAL, CN, PEST/PCB
							5.0'-6.0' SAND: wet, black, coarse, cinders, slag, pebbles, wood chips, product odor (fuel)	1.0'-2.0' SB05-2 CLPVOA
							TOTAL DEPTH = 6.0 FEET	4.0'-6.0' SB05-3 CLPSV, TAL, CN, PEST/PCB, CLPVOA TOX, TOC, PART.
	10.0							
	15.0							
	20.0							

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: <u>SB6</u> PROJECT: <u>MARTIN AARON RI/RAA</u> PROJECT NO: <u>96-1322-A124</u>			
LOCATION: <u>Martin Aaron Site</u>						COORD EAST: <u>1873067.496</u>		NORTH: <u>398386.882</u>	
SURFACE ELEV: <u>201.89</u>						TOP OF CASING: <u>--</u>		WEATHER: <u>Sunny, hot, 100 degs. F.</u>	
DRILLING CO: <u>JCA</u>						DRILLER: <u>J. Urban</u>		LRK INSPECTOR: <u>W. Stenger</u>	
DRILLING METHOD: <u>Hollow Stem Auger</u>						RIG TYPE: <u>Failing</u>			
DATE STARTED: <u>7/15/97</u>						WATER LEVEL DEPTH: <u>N/A</u>		FT. TIME: <u>N/A</u> DATE: <u>N/A</u>	
COMPLETED: <u>7/15/97</u>						<u>N/A</u>		FT. TIME: <u>N/A</u> DATE: <u>N/A</u>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS		
200	0.0	S-1	9	0.7	0.0		0.0'-2.0' FILL: sand, dark brown, pebbles, pieces of cardboard presumed to be old Fibre drum @ 1.5'	0.0'-0.5' SB6-1 CLPSV, TAL, CN, PEST/PCB, dioxin/Furan 0.0'-0.5' SB6-2 Dup. dioxin/Furan 1.5'-2.0' SB6-3 CLPVOA		
	19		29							
	5.0	S-2	12	1.2	16				2.0'-4.0' FILL: sand, medium-fine, tan-dark brown, pieces brick, white sand 3.0'-3.5'	
			10							8
			5							5
155	S-3	10	1.3	891		4.0'-6.0' SILTY SAND: dark brown, cinders, tiny pieces coal, wet on bottom	5.0'-6.0' SB6-4 CLPSV, TAL, CN, PEST/PCB, CLPVOA 6.0'-11.0' SB6-5 VOL 8240			
		4						7		
		5						5		
10.0	S-4	4	0.6	2437		6.0'-8.0' SILTY SAND: dark brown, cinders, saturated				
		10					7			
		10					10			
190	HP-1					8.0'-11.0' Hydropunch				
						TOTAL DEPTH = 11.0 FEET				
185										
180										

300104

BORING LOG


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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB07 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 202.62						TOP OF CASING: --		WEATHER: Overcast, warm	
DRILLING CO: JCA			DRILLER: J Urban			LRK INSPECTOR: W. Stenger			
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 07/10/97			WATER LEVEL DEPTH: N/A			FT: TIME: N/A		DATE: N/A	
COMPLETED: 07/10/97			N/A			FT: TIME: N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0							
		S-1	25 37 56 60	1.3	0.0		0.0'-2.0' SAND: coarse-medium, brick, pebbles, angular, fill, rock 1.5' - appears to be granite	0.0'-0.5' SB07-1 CLPSV, TAL, CN, PEST/PCB
200		S-2	21 25 30 24	1.3	39		2.0'-4.0' SAND: black-gray, large cobbles, angular, brick, product odor	0.5'-2.0' SB07-2 CLPVOA
	5.0	S-3	5 7 9 10	0.9	883		4.0'-6.0' SAND: silty, greenish gray with black mottling	5.0'-6.0' SB07-3 CLPVOA
		S-4	1 1 15 11 10	1.2	2116		6.0'-8.0' SAND: medium-coarse, green to black, large cobbles, saturated	5.0'-8.0' SB07-3 CLPSV, TAL, CN, PEST/PCB, TOX, TOC, PART
195							Hydropunch	6.0'-10.0' SB07-4 VO (8240)
	10.0						TOTAL DEPTH = 10.0 FEET	6.0'-10.0' SB07-5 VO (8240) duplicate
190								
	15.0							
185								
	20.0							

BORING LOG

PAGE 1 OF 2

 <p> L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700 </p>	<p>BORING NO: <u>S88</u></p> <p>PROJECT: <u>MARTIN AARON RI/RAA</u></p> <p>PROJECT NO: <u>96-1322-A124</u></p>
LOCATION: <u>Martin Aaron Site</u> COORD EAST: <u>-</u> NORTH: <u>-</u>	
SURFACE ELEV: <u>202.54</u> TOP OF CASING: <u>--</u> WEATHER: <u>Sunny, hot, 100 degs. F.</u>	
DRILLING CO: <u>JCA</u> DRILLER: <u>J. Urban</u> LRK INSPECTOR: <u>W. Stenger</u>	
DRILLING METHOD: <u>Hollow Stem Auger/Mud Rotary</u> RIG TYPE: <u>Failing</u>	
DATE STARTED: <u>7/16/97</u> WATER LEVEL DEPTH: <u>N/A</u> FT: <u>N/A</u> TIME: <u>N/A</u> DATE: <u>N/A</u>	
COMPLETED: <u>7/16/97</u> <u>N/A</u> FT: <u>N/A</u> TIME: <u>N/A</u> DATE: <u>N/A</u>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.4" CONCRETE	
		S-1	20 25	0.9	326		0.4'-2.0' FILL: black cinders, coal pieces, black sand, stones, pieces concrete	0.4'-1.0' S88-1 CLPSV, TAL, CYN, PEST/PCB, dioxin/furan
200		S-2	10 9 7 4	1.5	740		2.0'-4.0' SAND: medium-fine, black, cinders, slag, ash, pebbles - angular, odor unknown	1.5'-2.0' S88-2 CLPVOA
	5.0	S-3	2 4 5 3	2.0	420		4.0'-6.0' Same as above, with silty layer from 5.0'-5.5' - green gray	3.0'-4.0' S88-3 CLPSV, TAL, CYN, PEST/PCB CLPVOA
195		S-4	2 2 3 2	1.7	634		6.0'-6.5' SAND: medium-fine, mottled, green/gray and tan 6.5'-7.5' SAND: wet, coarse, green/gray pebbles 7.5'-8.0' SAND: medium-fine, black, odor-fuel	Used to supplement S88-3
	10.0						8.0'-17.0' Mud Rotary	
190								
	15.0							
185		S-5	8 7 6 7	0.7	0.2		17.0'-19.0' SILT: tight, sandy, fine, clayey with pebbles and gravel, rounded, dark gray, wet	
	20.0						19.0'-29.0' Mud rotary - losing mud fast	

300106

BORING LOG

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L ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB8

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

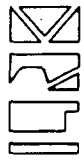
CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0						so drilled to 32.0' to get past lost mud completely	
	25.0							
	30.0							
		S-6	28 24 36 45	13	00		32.0'-34.0' SAND gray, coarse, with pebbles angular	
	35.0	HP-1					34.0'-37.5' Hydropunch	34.0'-37.5' SB8-4 VOL 8240
							TOTAL DEPTH = 37.5 FEET	
	40.0							

300107

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB9

PROJECT: MARTIN AARON RI/RAA


PROJECT NO: 96-1322-A124

LOCATION: Martin Aaron Site COORD EAST: - NORTH: -
SURFACE ELEV: 200.89 TOP OF CASING: -- WEATHER: Sunny, hot, 100 degs. F.
DRILLING CO: JCA DRILLER: J. Urban LRK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger RIG TYPE: Failing
DATE STARTED: 7/14/97 WATER LEVEL DEPTH: N/A FT; TIME: N/A DATE: N/A
COMPLETED: 7/14/97 N/A FT; TIME: N/A DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	27 13 11 13	1.0	32.1		0.0'-2.0' FILL: sand, pieces concrete, to dark brown, cinders, cobbles, angular	0.0'-0.5' SB9-1 CLPSV, TAL, CN, PEST/PCB
		S-2	7 5 4 25	0.9	549		2.0'-4.0' SAND: medium, black, cinders, ash, slag	0.5'-2.0' SB9-2 CLPVOA
195	5.0	S-3	5 2 1 3	0.8	183		4.0'-6.0' SAND: medium-fine, black, cinders, ash, slag, wet @ 5.5'	3.0'-5.0' SB9-3 CLPSV, TAL, CN, PEST/PCB CLPVOA, TOX, TOC, part. size Used top 1' to supplement SB9-3
							TOTAL DEPTH = 6.0 FEET	
190	10.0							
185	15.0							
180	20.0							

BORING LOG

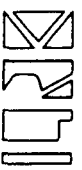
PAGE 1 OF 1

 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: <u>SB10</u> PROJECT: <u>MARTIN AARON RI/RAA</u> PROJECT NO: <u>96-1322-A124</u>			
LOCATION: <u>Martin Aaron Site</u>						COORD EAST: <u>1873142.425</u>		NORTH: <u>398358.988</u>	
SURFACE ELEV: <u>201.82</u>						TOP OF CASING: <u>--</u>		WEATHER: <u>Sunny, hot, 100 degs. F.</u>	
DRILLING CO: <u>JCA</u>			DRILLER: <u>J. Urban</u>			LRK INSPECTOR: <u>W. Stenger</u>			
DRILLING METHOD: <u>Hollow Stem Auger</u>						RIG TYPE: <u>Failing</u>			
DATE STARTED: <u>7/15/97</u>			WATER LEVEL DEPTH: <u>N/A</u>			FT. TIME: <u>N/A</u>		DATE: <u>N/A</u>	
COMPLETED: <u>7/15/97</u>			N/A			FT. TIME: <u>N/A</u>		DATE: <u>N/A</u>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	14	1.6	10		0.0'-2.0' FILL: sand, medium-fine, stones yellowish discoloration in 0.0'-0.5' intervals pieces brick, cinders	0.0'-0.5' SB10-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan 1.5'-2.0' SB10-2 CLPVOA
	24							
	5.0	S-2	10	0.9	102		2.0'-4.0' SAND: dark brown-black, cinders, ash, bits coal, brick 3.0'-3.5'	
			11					
	15.0	S-3	8	1.7	964		4.0'-6.0' CINDERS: ash, black sand, pebbles - angular	
10								
19.5	S-4	6	0.2	0.0	6.0'-8.0' CINDERS: ash, black sand, pebbles - angular, wet	6.0'-11.0' SB-4 VOL 8240		
		2						
10.0	HP-1	4			8.0'-11.0' Hydropunch			
		3						
19.0					TOTAL DEPTH = 11.0 FEET			
15.0								
18.5								
20.0								
19.0								

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB11 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 203		TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.					
DRILLING CO: JCA		DRILLER: J. Urban		LRK INSPECTOR: E. Sciulli					
DRILLING METHOD: Mud Rotary				RIG TYPE: Failing					
DATE STARTED: 6/24/97		WATER LEVEL DEPTH: N/A		FT: TIME: N/A		DATE: N/A			
COMPLETED: 6/24/97		N/A		FT: TIME: N/A		DATE: N/A			

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200 190	0.0	S-1	26 35 57 94	1.2	124	---	0.0'-0.5' SILT: trace sand, brown very tight, dry	0.0'-0.5' SB11-1 CLPSV, TAL, CN, PEST/PCB 1.0'-1.5' SB11-2 CLP VOA 3.0'-3.5' SB11-3 CLPSV, TAL, CN, PEST/PCB CLP VOA
		S-2	32 25 7 189	1.0	583	---	0.5'-1.5' As above, dry, black, not as tight occasional cinders 1.5'-2.0' BRICK	
		S-3	9 7 3 11	0.8	265	---	2.0'-4.0' SAND: s. silt, black, loose, some cinders, ash, very damp @ 3.5'	
		S-4	7 18 3 2	0.6	65	---	4.0'-6.0' As above, some orange brown oxidation cinders; combustion product, very damp to wet	
		S-5	3 1 1 4	0.0	0.0	---	6.0'-8.0' SAND: trace silt, medium-fine, black shell, wet	
		S-6	2 1 1 2	0.5	49	▨	8.0'-10.0' No recovery 10.0'-12.0' CLAYEY SILT: cohesive plastic, gray to grayish green, wet	
		S-7	1 1 3 4	1.5	79	---	12.0'-14.0' As above to 13.5' 13.5'-14.0' Organic matter, sand, trace silt, dark gray, medium-fine, loose	
							No recovery	
185		S-8	5 5 5 10	1.0	12	---	17.0'-19.0' SAND: as above, coarser grained (medium), poorly sorted, occasional medium quartz gravel, rounded	

300110

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB11

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0						No recovery	
		S-9	4 5 5 5	1.8	0.02	---	22.0'-24.0' SILT trace fine-very fine sand; brown to orange brown At 23.0' grading to silty clay, light gray to white, cohesive, plastic	
	25.0						No recovery	
		S-10	2 3 15 16		1.8	---	27.0'-29.0' SILT orange brown to brown, grading to sand, brown, medium-fine, well sorted, clay stringer approx 1.5", light gray to white, mottled, cohesive	
	30.0						No recovery	
		S-11	15 20 47 52		0.0		32.0'-34.0' SAND s silt, brown to orange brown fine-very fine, well sorted, tight	
	35.0						No recovery	
		S-12	22 50 39 49		1.5		37.0'-39.0' SAND medium-coarse, poorly sorted loose, light tan to white, angular clay stringer at 38.5' (approx 1")	
	40.0						No recovery	

300111

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB11

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0							
		S-13	7 25 37 50	0.8	1.6		42.0'-44.0' SAND s silt, fine-medium, poorly sorted, brown to orange brown	
	45.0						No recovery	
		S-14	5 18 49 55	0.5	0.0		47.0'-49.0' SAND trace silt, fine-medium, brown turning orange brown	
	50.0	S-15	5 11 15 22	0.5	0.0		49.0'-51.0' As above, brown to tan	
		S-16	12 17 36 39				51.0'-53.0' As above, medium-coarse, some small gravel, brown to orange brown	
							No recovery	
	55.0							
		S-17	15 17 17 18	1.3	0.0		56.0'-59.0' CLAY white, plastic, dense	
							No recovery	
	60.0							

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB11

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124


CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	60.0							
		S-18"	15 22 29 36	0.5	0.0		61.0'-63.0' SAND trace silt, light brown to tan, some clay adhering to gravel	
							TOTAL DEPTH = 63.0 FEET	
	65.0							
	70.0							
	75.0							
	80.0							

300113

BORING LOG


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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700					BORING NO: SB12 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124				
LOCATION: Martin Aaron Site					COORD EAST: -		NORTH: -		
SURFACE ELEV: 203.05					TOP OF CASING: --		WEATHER: Overcast, warm		
DRILLING CO: JCA			DRILLER: J. Urban		LRK INSPECTOR: W. Stenger				
DRILLING METHOD: Hollow Stem Auger					RIG TYPE: Failing				
DATE STARTED: 07/10/97			WATER LEVEL DEPTH: N/A		FT: TIME: N/A		DATE: N/A		
COMPLETED: 07/10/97			N/A		FT: TIME: N/A		DATE: N/A		

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPH)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' FILL: sand, coarse-medium, tan to dark brown, cinders, ash, cobbles	0.0'-0.5' SB12-1 CLPSV, TAL, CN, PEST/PCB
200		S-1	6 8 12 13	1.7	25			
		S-2	5 8 8 12	1.7	564		2.0'-3.0' CINDERS: ash, pebbles, dark brown sand 3.0'-3.5' COAL 3.5'-4.0' CINDERS: ash, pebbles, black sand	0.5'-2.0' SB12-2 CLPVOA
150	5.0	S-3	7 12 9 48	1.8	685		4.0'-6.0' CINDERS: ash, coal, black to brown sand, slag	4.0'-6.0' SB12-3 CLPSV, TAL, CN, PEST/PCB, CLPVOA
		S-4	8 11 10	2.0	127		6.0'-8.0' CINDERS: ash, coal, black sand, coarse, odor, wet @ 7.0'	TOX, TOC, PART.
100	10.0						TOTAL DEPTH = 8.0 FEET	
150								
	15.0							
185								
	20.0							

BORING LOG

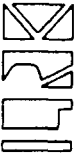
PAGE 1 OF 1

 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB13 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 203.28						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/15/97						WATER LEVEL DEPTH: N/A		FT: TIME: N/A DATE: N/A	
COMPLETED: 7/15/97						N/A		FT: TIME: N/A DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	13 16 21 26	1.0	0.0		0.0'-2.0' SAND: fine-medium, brown to orangish brown, dry, pieces brick	0.0'-0.5' SB13-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan 1.5'-2.0' SB13-2 CLPVOA 5.0'-6.0' SB13-3 CLPSV, TAL, CN, PEST/PCB, CLPVOA, TOX, TOC, Part. 6.0'-11.0' SB13-4 VOL 8240
		S-2	9 6 7 10	1.2	0.0		2.0'-4.0' FILL: bricks, sand, medium-fine, light brown-gray, stones - angular	
	5.0	S-3	9 6 7	1.5	0.0		4.0'-6.0' FILL: sand, dark brown, ash cinders, brick, tan, silty sand @ 5.0'-5.5' then brick	
		S-4	1 1 1 1	1.0	0.0		6.0'-8.0' FILL: sand, silty, pebbles-round, dark brown, wet @ 7.0', clay at bottom	
195							8.0'-15.0' Hydropunch	
	10.0	HP-1						
190								
	15.0						TOTAL DEPTH = 15.0 FEET	
185								
	20.0							

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB14 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 203.05						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/15/97						WATER LEVEL DEPTH: N/A		FT: TIME: N/A	
COMPLETED: 7/15/97						N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' FILL: sand, medium-fine, light brown, brick, stones	0.0'-0.5' SB14-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan 1.5'-2.0' SB14-2 CLPVOA Used to supplement SB14-1 Used to supplement SB14-3
		S-1	20 16 14 11	1.0	0.0			
200		S-2	8 6 5 4	1.3	0.0		2.0'-4.0' FILL: sand, medium-fine, dark brown, brick, stones	
		S-3	1 1 2 2	1.0	0.0		4.0'-6.0' FILL: sand, dark brown, cinders, ash, wood chips, pebbles, gray sand, dense @ 5.5', 1" thick	
150		S-4	1	0.7	444		6.0'-8.0' SAND: dark brown, medium-fine, clay, gray with black streaks @ 7.5'-8.0', wet	
		HP-1					8.0'-10.0' Hydropunch	5.0'-8.0' SB14-3 CLPSV, TAL, CN, PEST/PCB, CLPVOA, TOX, TOC, Part.
	10.0						TOTAL DEPTH = 10.0 FEET	5.0'-10.0' SB14-4 VOL 8240
190								
	15.0							
185								
	20.0							

300116


BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB15 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 202.41						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/14/97						WATER LEVEL DEPTH: N/A		FT: TIME: N/A	
COMPLETED: 7/14/97						N/A		FT: TIME: N/A	
ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS	
200	0.0	S-1	20 14 33 33	1.0	0.0		0.0'-2.0' SAND: medium-fine, grayish brown ben. pebbles, angular, dry	0.0'-0.5' SB15-1 CLPSV, TAL, CN, PEST/PCB	
		S-2	3 2 2 2	0.5	315		2.0'-4.0' SAND: coarse, brown, slag, cinders, cobbles, dry	1.5'-2.0' SB15-2 CLPVOA Used to supplement SB15-1	
		S-3	2 2 3 5	0.8	120		4.0'-6.0' SAND: coarse-medium, gray-black, cinders, slag, dry	3.5'-6.0' SB15-3 CLPSV, TAL, CN, PEST/PCB	
		S-4	2 3 4 4	1.0	1565		6.0'-8.0' SAND: coarse, brown-gray black, many pebbles, angular, cinders, slag, wet @ 6.5'	6.0'-6.5' SB15-4 CLPVOA	
		HP-1					8.0'-10.0' Hydropunch		
195							TOTAL DEPTH = 10.0 FEET	5.0'-10.0' SB15-5 VOL 8240	
190									
185									
180									
175									
170									
165									
160									
155									
150									
145									
140									
135									
130									
125									
120									
115									
110									
105									
100									
95									
90									
85									
80									
75									
70									
65									
60									
55									
50									
45									
40									
35									
30									
25									
20									

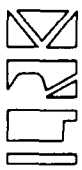
BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB16 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 203.16						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/15/97						WATER LEVEL DEPTH: N/A		FT. TIME: N/A	
COMPLETED: 7/15/97						N/A		FT. TIME: N/A	
ELEV (FT)		DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0		S-1	30 29 18 23	1.5	13.8		0.0'-2.0' FILL: sand, medium-fine, gravel, yellowish green sandy material with quartz pebbles @ 1.5'-2.0'	0.0'-0.5' SB16-1 CLPSV, TAL, CN, PEST/PCB dioxin/Furan 1.5'-2.0' SB16-2 CLPVOA 6.0'-7.0' SB16-3 CLPSV, TAL, CN, PEST/PCB CLPVOA, TOX, TOC, Part. 6.0'-11.0' SB16-4 VOL 8240
			S-2	8 7 7 9	1.3	128		2.0'-4.0' FILL: sand, medium, ash cinders, brick pieces	
	5.0		S-3	6 4 2 1	1.3	258		4.0'-6.0' SAND: black, ash, cinders, brick pieces, green sand at bottom of spoon was not SPCT	
			S-4	2 6 5 4	1.5	503		6.0'-8.0' SAND: greenish black, medium to fine, wet @ 7.0'	
	10.0		HP-1					8.0'-11.0' Hydropunch	
								TOTAL DEPTH = 11.0 FEET	

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE (814) 472-7700						BORING NO: SB17 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.41		TOP OF CASING: --		WEATHER: Sunny, hot, 95 degs. F.					
DRILLING CO: JCA		DRILLER: J. Urban		LRK INSPECTOR: W. Stenger					
DRILLING METHOD: Mud Rotary				RIG TYPE: Failing					
DATE STARTED: 7/17/97		WATER LEVEL DEPTH: N/A		FT: TIME: N/A		DATE: N/A			
COMPLETED: 7/17/97		N/A		FT: TIME: N/A		DATE: N/A			

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-2.0' FILL: sand, medium, dark brown, pebbles, pieces brick	0.0'-0.5' SB17-1 CLPSV, TAL, CN, PEST/PCB 1.5'-2.0' SB17-2 CLPVOA Poor recovery, sample saturated by drill mud 5.0'-6.0' SB17-3 CLPSV, TAL, CN, PEST/PCB CLPVOA
		S-1	20 19 13 8	1.0	1.2		2.0'-4.0' Same as above	
		S-2	4 7 2 2	0.6	0.0			
	5.0	S-3	1 2 1 1	1.0	100		4.0'-6.0' SILT: with fine sand, granular, damp, odor, wet @ 5.5'	
	15.0	S-4	7 20 16 10	1.8	874		6.0'-6.5' SILT: with fine sand, granular 6.5'-7.0' SAND: medium, blue/green 7.0'-8.0' SAND: medium, black, odor, saturated	
185	10.0						Rotary to 17.0'	
	15.0							
	18.0	S-5	10 14 7 9	0.8	196		17.0'-19.0' SAND: coarse with large 1/4 - 1/2" pebbles, saturated, gray	
20.0							Rotary to 30.0'	

300119

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

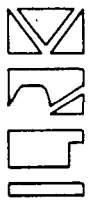
BORING NO: SB17
PROJECT: MARTIN AARON RI/RAA
PROJECT NO: 96-1322-A124
CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0							
	25.0							
	30.0	S-6	16 15 13 10	0.8	0		30.0'-32.0' SAND coarse, with large 1/4" to 1/2" pebbles, saturated, gray	
	35.0						Rotary to 37.0'	
		S-7	42 15 6	1.0	0		37.0'-37.5' Same as above 37.5'-38.0' SAND medium-fine, grayish tan, saturated	
	40.0						Rotary to 43.0'	

300120

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB17

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

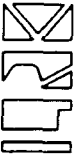
CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0							
		S-8	27 65 103	1.0	0		43.0'-44.5' SAND medium-fine, pebbles, small rounded, white-tan	
	45.0						Rotary to 48.0'	
		HP-1					48.0'-51.0' Hydropunch	
	50.0							48.0'-51.0' SB17-4 VOL 8240
							TOTAL DEPTH = 51.0 FEET	
	55.0							
	60.0							

300121

BORING LOG

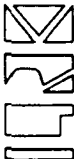
PAGE 1 OF 1

 L. ROBERT KIMBALL & ASSOCIATES INC 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB18 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 203.77						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/14/97						WATER LEVEL DEPTH: N/A		FT; TIME: N/A	
COMPLETED: 7/14/97						N/A		FT; TIME: N/A	
ELEV (FT)		DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0							0.0'-2.0' FILL: silty sand, medium to fine, pebbles - angular, light brown-brown	0.0'-0.5' SB18-1 CLPSV, TAL, CN, PEST/PCB
		S-2	12 20 32 24	1.7	0.0			2.0'-4.0' SAND: medium-coarse, pebbles, angular, pieces brick	0.0'-0.5' SB18-2 dup.
		S-2	9 16 12 10	1.0	9.9			4.0'-6.0' SAND: coarse, pebbles, cinders, slag, brown, angular, dry	1.5'-2.0' SB18-3 CLPVOA
	5.0	S-3	11 3 4 3	1.5	81			6.0'-8.0' SAND: medium-fine, ash cinders, slag, brick pieces, silty near top wet @ 7.5'	1.5'-2.0' SB18-4 dup. CLPVOA
		S-4	4 3 4 5	1.2	331			TOTAL DEPTH = 8.0 FEET	Used to supplement SB18-5 6.0'-7.0' SB18-5 CLPSV, TAL, CN, PEST/PCB 7.0'-7.5' SB18-6 CLPVOA
195	10.0								
190	15.0								
185	20.0								



300122

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB19
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.79	TOP OF CASING: --	WEATHER: Sunny, hot, 95 degs. F.
DRILLING CO: JCA	DRILLER: J Urban	LRK INSPECTOR: W Stenger
DRILLING METHOD: Mud Rotary	RIG TYPE: Failing	
DATE STARTED: 7/17/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/17/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' SAND: medium to fine, block	
200		S-1	4 5 15 17	1.2	0			
		S-2	8 4 3 4	1.0	0		2.0'-4.0' SAND: medium-coarse, ash, cinders, slag	0.0'-0.5' SB19-1 CLPSV, TAL, CN, PEST/PCB 1.5'-2.0' SB19-2 CLPVOA
50		S-3	4 8 10 8	1.0	1121		4.0'-6.0' SAND: medium-coarse, cinders, strong odor, pebbles, angular	
155		S-4	1 1	0.2	0		6.0'-8.0' GRAVEL: pieces brick, 1/4" to 1/2" - prob. water	5.0'-6.0' SB19-3 CLPSV, TAL, CN, PEST/PCB CLPVOA, TOX, TOC, Part. size
							Rotary to 17.0' Major mud loss - mud is coming out of ground @ 6.0' from tub	
10.0								
190								
15.0								
185		S-5	6 8 9 10	1.0	0		17.0'-19.0' CLAY: silty, tan to gray, mostly gray	
							Rotary to 30.0'	
20.0								

300123

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931





TELEPHONE: (814) 472-7700

BORING NO: SB19

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0							
	25.0							
	30.0	S-6	7 10 11 10	1.1	5.8		30.0'-30.5' GRAVEL 1/2" to 1" size, little sand matrix 30.5'-32.0' SAND medium, brown to tan, little gravel, 1/8" to 1/4" size	
	35.0						Rotary to 37.0'	
		S-7	25 37 50 66	1.0	0		37.0'-39.0' SAND medium-coarse, pebbles, small angular, white	
	40.0						Rotary to 47.5'	

300124

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB19

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

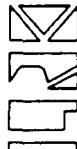
CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0							
	45.0							
	50.0	HP-1		-	-		47.5'-52.0' Attempted hydropunch Failed @ 15 15, No sample	
	55.0						Rotary to 55.0'	
		HP-1		-	-		55.0'-58.0' Hydropunch	Obstruction in rods will not allow boiler to descend Hydropunch was apparently assembled wrong
							TOTAL DEPTH = 58.0 FEET	55.0'-58.0' SB19-4 VOL 8240
	60.0							

300125

BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB20 (MW-1S) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.61						TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 07/08/97						WATER LEVEL DEPTH: 9.01		FT. TIME: 9:00	
COMPLETED: 07/08/97						5.90		FT. TIME: 13:30	
DATE: 7/16/97		DATE: 9/16/97							

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	8	1.3	0.0		0.0'-2.0' FILL: sand, silty, medium-fine, orange-medium brown, with pebbles rounded, pieces of concrete @ 1.5'	
	14							
	5.0	S-2	5	1.8	0.0		2.0'-4.0' SAND: coarse, dark brown, cinders, gravel, slag, dry	
195	5.0	S-3	2	2.0	0.0		4.0'-6.0' SAND: coarse, dark brown, cinders, gravel, slag	0.0'-0.5' SB20-1 CLPSY, TAL, CN, PEST/PCB
	10.0							0.5'-2.0' SB20-2 CLP VOA
190	15.0							4.0'-6.0' SB20-3 CLPSY, TAL, CN, PEST/PCB, CLP VOA
	20.0							
185								
180								
							TOTAL DEPTH = 14.0 FEET	Auger to 14' to set well

300126

BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB22 (MW-1M) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124</p>
--	--

LOCATION: <u>Martin Aaron Site</u>	COORD EAST: <u>-</u>	NORTH: <u>-</u>
SURFACE ELEV: <u>201.61</u>	TOP OF CASING: <u>--</u>	WEATHER: <u>Hot, Humid, 80 degs. F.</u>
DRILLING CO: <u>JCA</u>	DRILLER: <u>J. Urban</u>	LRK INSPECTOR: <u>W. Stenger</u>
DRILLING METHOD: <u>Mud Rotary</u>		RIG TYPE: <u>Failing</u>
DATE STARTED: <u>6/25/97</u>	WATER LEVEL DEPTH: <u>13.92 FT</u>	TIME: <u>9:00</u> DATE: <u>7/16/97</u>
COMPLETED: <u>6/25/97</u>	<u>13.83 FT</u>	TIME: <u>13:50</u> DATE: <u>9/16/97</u>

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	9 10 10 8	0.9	0.0		0.0'-0.8' SAND: light brown, with silt and pebbles 0.8'-2.0' SAND: dark brown-black, with cinders and slag	
							2.0'-5.0' No recovery	
	5.0	S-2	3 2 1 2	0.4	0.0		5.0'-7.0' SAND: black, with cinders, ash and slag	
195							7.0'-10.0' No recovery	
	10.0	S-3	9 8 5 3	0.6	166	— 		

300127

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB22 (MW-1M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0						20 0'-22.0' Rod sank, no spoon	
							Rod Sank	
		S-5	14 32 32 36	1 2	101		22 0'-23 5' SAND brown, medium, with trace clay, pebbles 23 5'-24 0' SAND light tan to white, medium-coarse	
	25.0						24 0'-25 0' No recovery	
		S-6	25 55 30 35	0.5	6 3		25 0'-27 0' SAND light tan to white, medium-coarse, little pebbles	
							27 0'-30 0' Possible white sandy clay stringers	Chips observed in mud cuttings @ 28 0'-30 0'
	30.0						30 0'-31 5' SAND light tan to white, coarse-medium	
		S-7	20 40 44 45	1 3	15 0		31 5'-32 0' SAND light brown-orange, coarse, with small pebbles, angular	FID hit at top of spoon
							32 0'-35 0' No recovery	
	35.0						35 0'-37 0' SAND light tan to light brown, medium to coarse, pebbles, angular dark brown bands 1/8" thick - 3 @ 35 5' 1/2" spacing	
		S-8	18 36 52 80	1 3	3 3			
							37 0'-40 0' No recovery	

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BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB22 (MW-1M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0	S-9	30 72 100	0.9	0.3		40.0'-42.0' SAND light tan to white, medium-fine	
							42.0'-45.0' No recovery	
	45.0	S-10	32 100	0.5	0.0		45.0'-47.0' SAND orangish brown, medium-fine	
							47.0'-50.0' No recovery	
	50.0	S-11	22 55 100	0.9	0.0		50.0'-52.0' SAND orangish brown, medium-fine	
		S-12	75 100	0.9	0.0		52.0'-54.0' SAND orangish brown, medium-fine	
	55.0	S-13	31 67 68 73	1.0	0.0		54.0'-56.0' SAND orangish brown, medium-coarse	
							56.0'-58.0' No recovery	
		S-14	29 35 31 27	1.0	0.0		58.0'-60.0' SAND orangish brown, medium-coarse, with trace clay, light tan	
	60.0							

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BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB22 (MW-1M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124


CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
60.0							60.0'-61.0' Hit top of clay	
		T-1		0.5				
		S-15	31 39 100	1.0	0.0		61.0'-61.5' CLAY: light tan, silty observed in end and then refusal	Driller could "feel it" and clay in mud cuttings
							61.5'-63.5' SANDY SILT: orangish brown, fine, with clay stringers, dry	
							63.5'-65.0' No recovery	
65.0		S-16	31 45 27 41	1.8			65.0'-67.0' CLAY: slightly sandy, light tan-white, tight and dry; interbedded silt at top	
							TOTAL DEPTH = 67.0 FEET	
70.0								
75.0								
80.0								

300130

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB23 (MW-2S)
	615 W HIGHLAND AVE. P O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	


LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.15	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 07/08/97	WATER LEVEL DEPTH: 13.68 FT.	TIME: 9:00
COMPLETED: 07/08/97	13.65 FT.	TIME: 10:50
		DATE: 7/16/97
		DATE: 9/16/97

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	3 6 7 6	1.3	1.6		0.0'-0.75' SAND: coarse, gravel, tan to light gray	
							0.75'-1.5' BRICK pieces, dark brown, cinders gravel	
		S-2	1 1 1 3	1.5	357		1.5'-2.0' SAND: silty, medium to fine, brown, dry	0.0'-0.5' SB23-1 CLPSV, TAL, CN, PEST/PCB
							2.0'-4.0' SILTY SAND: fine, dark brown-black odor present	0.0'-0.5' SB23-2 Duplicate of SB23-1
150	5.0	S-3	3 4 4 4	2.9	238		4.0'-6.0' SAND: coarse-medium, bright green discoloration, silty near bottom, odor	0.5'-2.0' SB23-3 CLP VOA
		S-4	3 5 4 5	2.0	129		6.0'-8.0' SAND: medium-fine, green-dark gray, odor, silty, damp @ 7.0'	0.5'-2.0' SB23-4 Duplicate of SB23-3
		S-5	8 3 4 5	2.0	256		8.0'-10.0' SAND: coarse-medium, green to black very silty, odor, wet @ 8.0'	2.0'-4.0' SB23-5 CLP VOA
100	10.0							4.0'-6.0' SB23-6 CLPSV, TAL, CN
150	15.0							PEST/PCB, CLP VOA
185							TOTAL DEPTH = 16.0 FEET	
200	20.0							Auger to 16.0' to set well
180								

300131

BORING LOG

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		L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700				BORING NO: SB24 (MW-2M) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
		LOCATION: Martin Aaron Site				COORD EAST: -		NORTH: -	
		SURFACE ELEV: 201.15		TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.			
		DRILLING CO: JCA		DRILLER: J. Urban		LRK INSPECTOR: W. Stenger			
DRILLING METHOD: Mud Rotary				RIG TYPE: Failing					
DATE STARTED: 6/26/97		WATER LEVEL DEPTH: 14.13 FT.		TIME: 9:00		DATE: 7/16/97			
COMPLETED: 6/26/97		14.12 FT.		TIME: 11:20		DATE: 9/16/97			

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	15	1.6	0.0	---	0.0'-0.5' SILT: trace medium-fine sand, brown	
			15				0.5'-2.0' SILT: as above, stained black	
		19	SAND: s. silt clay stringer, loose					
		7	4.0'-5.0' No recovery					
150	5.0	S-2	1	2.0	35.6	---	5.0'-7.0' SILT: with trace sand, greenish black	
			1				dry, noticable odor, slightly clayey	
		1	7.0'-10.0' No recovery					
100	10.0	S-3	2	1.8	10.5	---	10.0'-11.5' ORGANICS, SILT - dark brown,	
			3				meadow mat type material	
		5	11.5'-12.0' SAND: dark gray, saturated					
				12.0'-15.0' No recovery				
50	15.0	S-4	10	0.8	618	---	15.0'-17.0' SAND: coarse-medium, gray with	
			12				black staining, small pebbles	
		14	17.0'-20.0' No recovery					
		14						
20.0								

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BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB24 (MW-2M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0	S-5	11 11 12 11	1.0	97		20.0'-21.5' SAND coarse, black, product odor with gravel, angular 21.5'-22.0' SAND silty, fine, black, odor	
	25.0						22.0'-30.0' No recovery	
	30.0	S-6	8 9 10 10	0.6	0.0		30.0'-32.0' SAND coarse, gray with gravel and quartz, rounded pebbles, trace shell fragments, large fragments, looks like calcite	
	35.0						32.0'-40.0' No recovery	
	40.0							

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

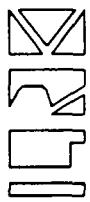
BORING NO: SB24 (MW-2M)
PROJECT: MARTIN AARON RI/RAA
PROJECT NO: 96-1322-A124
CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0	S-7	14 28 31 28	1.8	0.0	---	40.0'-42.0' SILT with sand, fine, light brown/mottled gray, light gray, sand @ 41.5' to mottled clay @ 41.75'	
							42.0'-50.0' No recovery	
	50.0	S-8	32 48 53 50	0.8	0.0		50.0'-52.0' SAND: coarse-medium, orangish brown, gravel, large to small, rounded	
							52.0'-55.0' No recovery	
	55.0	S-9	35 36 17 22	1.0	0.0		55.0'-57.0' SAND coarse, orangish brown with gravel, large to small, rounded	
							57.0'-60.0' No recovery	
	60.0							

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BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB24 (MW-2M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124


CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
60.0		S-10	17 36 52 61	0.8	0.0		60.0'-62.0' SAND silty, medium-fine, orangish brown, with trace clay stringers	
		S-11	48 53 61 78	1.2	0.0		62.0'-64.0' SAND coarse-medium, orangish brown	
65.0							64.0'-67.0' No recovery	
		S-12	21 26 24 24	1.3	0.0		67.0'-68.5' SAND coarse-medium, light tan to orangish brown	
							68.5'-69.0' CLAY sandy, mottled gray and orangish brown, dry	
70.0		S-13	20 25 30 46	1.5	0.0		69.0'-71.0' SILTY CLAY light tan, dry	
							TOTAL DEPTH = 71.0 FEET	
75.0								
80.0								

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB26 (MW-3S) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124</p>
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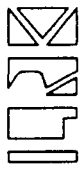
LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 202.21	TOP OF CASING: --	WEATHER: Sunny, warm
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: W. Stenger
DRILLING METHOD: Hollow Stem Auger		RIG TYPE: Failing
DATE STARTED: 07/07/97	WATER LEVEL DEPTH: 11.65 FT; TIME: 9:00	DATE: 7/16/97
COMPLETED: 07/07/97	11.64 FT; TIME: 9:00	DATE: 9/16/97

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-2.0' FILL: dark brown, sand, cinders, cobbles, large pieces of concrete, dry	0.0'-0.5' SB26-1 CLPSV, TAL, CN, PEST/PCB 0.5'-2.0' SB26-2 CLP VOA
		S-1	10 20 11 19	1.1	0.0			
		S-2	5 8 25 36	1.2	0.0		2.0'-4.0' FILL: dark brown, sand, cinders, cobbles, dry	
	5.0	S-3	30 10 11 11	0.5	0.0		4.0'-6.0' FILL: dark brown, sand, cinders, cobbles, dry, concrete plug in bottom	
		S-4	5 7 5 14	1.2	0.0		6.0'-8.0' SAND: medium to fine, brown to dark brown, silty 7.5'-8.0'	
195		S-5	2 2 5 7	1.5	0.0		8.0'-10.0' SAND: medium dark brown to gray saturated	6.0'-8.0' SB26-3 CLPSV, TAL, CN, PEST/PCB CLPVOA
	10.0							
190								
	15.0							
185								
							TOTAL DEPTH = 16.0 FEET	Auger to 16.0' to set well
	20.0							

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BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB27 (MW-3M) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124</p>
<p>LOCATION: <u>Martin Aaron Site</u> COORD EAST: - NORTH: -</p>	
<p>SURFACE ELEV: <u>202.21</u> TOP OF CASING: -- WEATHER: <u>Partly cloudy, warm</u></p>	
<p>DRILLING CO: <u>JCA</u> DRILLER: <u>J. Urban</u> LRK INSPECTOR: <u>W. Stenger</u></p>	
<p>DRILLING METHOD: <u>Hollow Stem Auger/Mud Rotary</u> RIG TYPE: <u>Failing</u></p>	
<p>DATE STARTED: <u>07/01/97</u> WATER LEVEL DEPTH: <u>15.36</u> FT; TIME: <u>9:00</u> DATE: <u>7/16/97</u></p>	
<p>COMPLETED: <u>07/01/97</u> <u>15.38</u> FT; TIME: <u>9:40</u> DATE: <u>9/16/97</u></p>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-2.0' FILL: dark brown sand, cinders, small pebbles - angular	Auger Spoon kicked sideways while driving refusal
		S-1	10	0.7	0.0		2.0'-0.5' Debris and cinders are coming up in mud	
195	5.0						5.0'-6.5' FILL: large cobbles, cinders, ash 6.5'-7.0' SAND: medium grain, brown, wet	Mud Rotary
		S-2	6 8 10 10	1.0	0.0		9.5' Cuttings coming up, black silt	
190	10.0						10.0'-12.0' SAND: medium-fine, trace round pebbles, gray, wet	
		S-3	5 5 3 4	1.5	63			
185	15.0						15.0'-17.0' SAND: coarse, gray, poorly sorted with pebbles/quartz, rounded	
		S-4	5 6 10 13	1.0	0.0			
200	20.0							

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L. ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB27 (MW-3M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0	S-5	6 8 8 7	1.3	0.0		20.0'-22.0' SAND medium to coarse, gray, less pebbles, 1-2" layer of silty clay, gray to light gray in color	
	25.0							
	30.0	S-6	6 7 16 18	0.7	0.0		30.0'-32.0' SAND coarse, orangish brown, many pebbles and gravel, medium rounded	
	35.0							
	40.0							

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L. ROBERT KIMBALL & ASSOCIATES INC.



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB27 (MW-3M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0	S-7	12 16 16 17	0.7	0.0		40.0'-42.0' SAND coarse, whitish tan, with pebbles, small-large, round	
	45.0							
	50.0	S-8	14 14 10 18	1.3	0.0		50.0'-52.0' GRAVEL poorly sorted, medium-large, angular, with some round	
	55.0	S-9	29 28 25 25	1.6	0.0		55.0'-56.0' SANDY SILT fine, trace clay, orangish brown, mottled 56.0'-57.0' SILTY CLAY fine, trace sand, orangish brown to tan, mottled	
	60.0		45				59.0'-61.0' SANDY CLAY orangish brown to tan,	

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BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC



615 W HIGHLAND AVE. P.O. BOX 1000



EBENSBURG PA 15931



TELEPHONE: (814) 472-7700

BORING NO: SB27 (MW-3M)

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124


CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	60.0	S-10	46 72 100	1.8	0.0		mottled, very fine	
		S-11	39 45 70 56	1.2	0.0		63.0'-65.0' SAND: coarse to medium, light brown	
	65.0							
	70.0						TOTAL DEPTH = 70.0 FEET	
	75.0							
	80.0							

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB29 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 200.97						TOP OF CASING: --		WEATHER: Overcast, hot	
DRILLING CO: JCA			DRILLER: J. Urban			LRK INSPECTOR: W. Stenger			
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 07/09/97			WATER LEVEL DEPTH: N/A			FT: TIME: N/A		DATE: N/A	
COMPLETED: 07/09/97			N/A			FT: TIME: N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	20 22 11 13	0.8	1.2		0.0'-2.0' FILL: coarse sand, cinders, slag, brown sand, pos. shingle	0.0'-0.5' SB29-1 CLPSV, TAL, CN, PEST/PCB 0.5'-2.0' SB29-2 CLPVOA 4.0'-6.0' SB29-3 CLPSV, TAL, CN, PEST/PCB CLPVOA
		S-2	7 2 3 6	0.5	0.0		2.0'-4.0' FILL: dark brown sand, cinders, pebbles, angular	
	5.0	S-3 (2)	2 1 1 1	1.1	0.6		4.0'-6.0' FILL: cinders, slag, dark brown sand, wet @ 6.0'	
	195	S-4	2 1 1 1				No recovery	
190	10.0						Rotary to 47.0' since we could not get recovery, we decided to drill to 47.0' take our hydropunch, and then auger at an adjacent location to get samples.	
185	15.0							
	20.0							

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BORING LOG

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 <p>L ROBERT KIMBALL & ASSOCIATES INC 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB29</p> <p>PROJECT: MARTIN AARON RI/RAA</p> <p>PROJECT NO: 96-1322-A124</p> <p>CLIENT: NJDEP</p>
--	---

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	20.0							
	25.0							
	30.0							
	35.0							
	40.0							

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L. ROBERT KIMBALL & ASSOCIATES INC.
 615 W HIGHLAND AVE. P.O. BOX 1000
 EBENSBURG PA 15931
 TELEPHONE: (814) 472-7700

BORING NO: SB29

PROJECT: MARTIN AARON RI/RAA


PROJECT NO: 96-1322-A124

CLIENT: NJDEP

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	40.0							
	45.0							
							Hydropunch	
	50.0						TOTAL DEPTH = 50.0 FEET	47.0' - 50.0' SB29-4 VO (8240)
	55.0							
	60.0							

BORING LOG


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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB30 (MW-4S) PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.08						TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: W. Stenger	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 07/08/97						WATER LEVEL DEPTH: 5.82		FT: TIME: 9:00	
COMPLETED: 07/08/97						5.58		FT: TIME: 8:30	
DATE: 7/16/97						DATE: 9/16/97			

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1		0.0	N/A		0.0'-2.0' All coarse stone, 1" mean diameter fill	
		S-2	5 5 5 4	1.3	65.0		2.0'-4.0' SAND: medium, brown, dry gravel fill, angular	2.0'-2.5' SB30-1 CLPSY, TAL, CN, PEST/PCB
195	5.0	S-3	1 1 1 5	0.3	16.0		4.0'-6.0' SAND: coarse-medium, dark brown, gravel fill, angular, damp	2.5'-4.0' SB30-2 CLP VOA
		S-4	1 1 1 1	0.8	20.0	— — — —	6.0'-8.0' SILT: fine sand, gray, wet, clayey, organic odor	6.0'-8.0' SB30-3 CLPSY, TAL, CN, PEST/PCB
		S-5	1 1 1 1	2.0	122		8.0'-10.0' Meadow Mat - organics	CLP VOA TCLVOC+10, % solids Spoon taken to gauge if meadow mat is a confining medium
190	10.0							
							TOTAL DEPTH = 14.0 FEET	Augered to 14.0' to set well
185	15.0							
180	20.0							

BORING LOG

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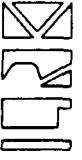
 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB31 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.67						TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.	
DRILLING CO: JCA						DRILLER: W. Reeve		LRK INSPECTOR: E. Sciuilli	
DRILLING METHOD: Geoprobe						RIG TYPE: Geoprobe			
DATE STARTED: 6/17/97						WATER LEVEL DEPTH: N/A		FT. TIME: N/A	
COMPLETED: 6/17/97						N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1		1.7	255		0.0'-1.0' DRAIN and CONCRETE 1.0'-3.0' SILT: trace sand and gravel, cinders, odor, moist	1.0'-1.5' SB31-1 CLPSV, TAL, CN PEST/PCB 1.0'-1.5' SB31-2 CLPVDA
		S-2		1.8	2756		3.0'-5.0' As above, strong odor	4.0'-5.0' SB31-3 CLPSV, TAL, CN PEST/PCB CLPVDA
195	5.0	S-3		0.7	2600		5.0'-7.0' As above, gravelly Very damp @ 7.0'	
		S-4		0.2	50		7.0'-9.0' As above, more gravel Wet @ 7.5'	Auger refusal @ 7.5'
	10.0						TOTAL DEPTH = 9.0 FEET	
190								
	15.0							
185								
	20.0							
180								

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BORING LOG

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 L ROBERT KIMBALL & ASSOCIATES INC 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700					BORING NO: SB32 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124									
LOCATION: Martin Aaron Site					COORD EAST: -					NORTH: -				
SURFACE ELEV: 202.58					TOP OF CASING: --					WEATHER: Hot, Humid, 80 degs. F.				
DRILLING CO: JCA					DRILLER: W. Reeve					LRK INSPECTOR: E. Sciulli				
DRILLING METHOD: Geoprobe					RIG TYPE: Geoprobe									
DATE STARTED: 6/17/97					WATER LEVEL DEPTH: N/A					FT: TIME: N/A				
COMPLETED: 6/17/97					N/A					FT: TIME: N/A				
DATE: N/A					DATE: N/A					DATE: N/A				

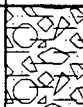









ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPH)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-1.0' CONCRETE	
		S-1		1.6	2300		1.0'-2.0' SAND: trace silt, orange brown, medium coarse grained, loose	1.0'-1.5' SB32-1 CLPSV, TAL, CN PEST/PCB
200							2.0'-3.0' SILT: trace sand, black, gravel, loose, strong odor	2.5'-3.0' SB32-2 CLPVOA
		S-2		1.8	287		3.0'-4.0' As above, slight odor	3.5'-4.0' SB32-3 CLPSV, TAL, CN PEST/PCB CLPVOA
150	5.0						4.0'-5.0' SAND: trace silt, medium-coarse, dark brown, loose, damp, occasional gravel	
		S-3		1.0	162		5.0'-7.0' As above, more gravel	
							Very damp @ 7.0'	
100		S-4		1.8	107		7.0'-7.5' As above	
							7.5'-9.0' SILTY CLAY: gray, cohesive, plastic, saturated	
	10.0						TOTAL DEPTH = 9.0 FEET	
150								
185	15.0							
	20.0							

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BORING LOG

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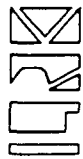
 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700					BORING NO: SB33 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124									
LOCATION: Martin Aaron Site					COORD EAST: -					NORTH: -				
SURFACE ELEV: 201.66					TOP OF CASING: --					WEATHER: Hot, Humid, 80 degs. F.				
DRILLING CO: JCA					DRILLER: W. Reeve					LRK INSPECTOR: E. Sciulli				
DRILLING METHOD: Geoprobe					RIG TYPE: Geoprobe									
DATE STARTED: 6/19/97					WATER LEVEL DEPTH: N/A					FT; TIME: N/A				
COMPLETED: 6/19/97					N/A					FT; TIME: N/A				
DATE: N/A										DATE: N/A				

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1		2.0	225		0.0'-0.5' CONCRETE and GRAVEL	0.5'-1.0' SB33-1 CLPSV, TAL, CN PEST/PCB 1.5'-2.0' SB33-2 CLP VOA 5.5'-6.0' SB33-4 CLPSV, TAL, CN PEST/PCB CLPVOA SB33-AB ambient blank
							0.5'-1.0' SAND: trace silt, medium-fine,	
							1.0'-1.3' Brick	
							1.3'-2.0' SILT: s. sand, medium-fine gravel, dark brown to black, strong odor	
							2.0'-4.0' As above, SILT: s. sand, medium-fine gravel, dark brown to black, odor	
150	5.0	S-3		1.2	499		4.0'-6.0' As above, cinders, gravel, combustion by products, ash	
		S-4		1.0	1700		Water @ 6.0'	
		S-5		1.8	450		6.0'-8.0' As above, cinders, ash, slag, wood Saturated @ 8.0'	
100	10.0						8.0'-9.5' SILT: trace sand, clayey, dark brown organic	
190							9.5'-10.0' Grading to medium-fine sand, some silt, brown to dark brown	
							TOTAL DEPTH = 12.0 FEET	
	15.0							
185								
	20.0							
180								

300147

BORING LOG

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBENSBURG PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB35

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

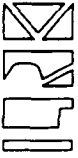
LOCATION: Martin Aaron Site COORD EAST: - NORTH: -
SURFACE ELEV: 201.87 TOP OF CASING: -- WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA DRILLER: W. Reeve LRK INSPECTOR: E. Sciuilli
DRILLING METHOD: Manual/Sledge Hammer RIG TYPE: None
DATE STARTED: 6/18/97 WATER LEVEL DEPTH: N/A FT. TIME: N/A DATE: N/A
COMPLETED: 6/18/97 N/A FT. TIME: N/A DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0							
		S-1		0.0	N/A		0.0'-0.5' CONCRETE and GRAVEL	
20							TOTAL DEPTH = 1.5'	1.0'-1.5' SB35-1 CLPSV, TAL, CN PEST/PCB CLPVOA Attempted 3 locations All refuse @ 1.3'-1.5' Hard layer
	5.0							
15								
	10.0							
10								
	15.0							
15								
	20.0							
10								

300148

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO. SB36
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.89	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/19/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 6/19/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE and GRAVEL	
		S-1		2.0	465		0.5'-2.0' SAND: trace silt, medium-coarse, dark brown to black, loose dry, strong odor, occasional medium to small gravel	0.5'-1.0' SB36-1 CLPSV, TAL, CN, PEST/PCB, dioxin, furan
		S-2		1.0	1400		2.0'-4.0' SAND: s. silt, medium-fine, occasional gravel, loose, damp, brown to orange brown, some black staining, damp @ 4.0'	0.5'-1.0' SB36-2 Duplicate of SB36-1
	5.0	S-3		1.7	1700		4.0'-6.0' SILT: s. medium-fine sand, black occasional gravel, tight, semi-cohesive	1.5'-2.0' SB36-3 CLPVOA 1.5'-2.0' SB36-4 Duplicate of SB36-3
	15.0	S-4		1.7	2047		6.0'-6.5' As above, silt, dark brown to black	5.5'-6.0' SB36-6 CLPSV, TAL, CN, PEST/PCB CLPVOA
							6.5'-8.0' SAND: medium-coarse, loose, abundant medium to large gravel, brown, stained black, possible product, very damp @ 6.0' saturated @ 6.3'	
	10.0						TOTAL DEPTH = 8.0 FEET	
	19.0							
	15.0							
	18.5							
	20.0							
	19.0							

BORING LOG

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 <p> L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700 </p>						<p> BORING NO: SB38 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124 </p>			
LOCATION: Martin Aaron Site COORD EAST: - NORTH: -									
SURFACE ELEV: 201.24 TOP OF CASING: -- WEATHER: Hot, Humid, 80 degs. F.									
DRILLING CO: JCA DRILLER: W. Reeve LRK INSPECTOR: E. Sciulli									
DRILLING METHOD: Geoprobe RIG TYPE: Geoprobe									
DATE STARTED: 6/19/97 WATER LEVEL DEPTH: N/A FT: TIME: N/A DATE: N/A									
COMPLETED: 6/19/97 N/A FT: TIME: N/A DATE: N/A									

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1		1.0	0.0		0.0'-0.3' CONCRETE	1.0'-1.5' SB38-1 CLPSY, TAL, CN PEST/PCB dioxin/furan 1.5'-2.0' SB38-2 CLPVOA 5.0'-6.0' SB38-3 CLPSY, TAL, CN PEST/PCB CLPVOA, TOX, TOC, Part. size Water @ 6.0'
		S-2		1.2	0.0		0.3'-2.0' SAND: trace silt, medium-coarse, dark brown to orange brown, loose, concrete brick gravel	
							2.0'-4.0' SAND: trace silt, medium-coarse, dark brown, loose, medium gravel, dry	
195	5.0	S-3		1.0	25.0		4.0'-6.0' As above, turning dark gray to black at 5.8'	
		S-4		1.2	66.0		6.0'-8.0' SILTY CLAY: dark gray, cohesive, plastic, strong odor, saturated	
							TOTAL DEPTH = 8.0 FEET	
190	10.0							
185	15.0							
180	20.0							

300150

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB39
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	


LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.94	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/19/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 6/19/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' No recovery, some brick and gravel	
200		S-1		0.0	0.0			
		S-2		1.8	0.0		2.0'-4.0' SAND: trace silt, dark brown, loose, dry, medium gravel, some brick, fill	2.0'-3.0' SB39-1 CLPSY, TAL, CN PEST/PCB CLPVOA, dioxin/furan
		S-3		0.0	N/A		4.0'-4.2' CONCRETE in tip of spoon	Auger refusal @ 4.2'
5.0							TOTAL DEPTH = 4.2 FEET	
15								
10.0								
150								
15.0								
185								
20.0								
180								

300151

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB40
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	


LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.64	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/16/97	WATER LEVEL DEPTH: N/A	FT; TIME: N/A
COMPLETED: 6/16/97	N/A	FT; TIME: N/A
		DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE, no recovery 2 attempts at hole Material in tip of spoon	
		S-1		0.0	31.5			
		S-2		1.2	1.9		2.0'-4.0' SILT: brown, some medium to fine sand, loose, damp non cohesive	2.0'-2.5' SB40-1 CLPSV, TAL, CN PEST/PCB 2.5'-3.0' SB40-2 CLPVOA
	5.0	S-3		1.2	1.6		4.0'-6.0' As above, medium-fine sand brown, very damp, semi-cohesive	
15		S-4		1.7	1.8		6.0'-7.5' As above 7.5'-8.0' SILT: trace sand, medium-fine very damp, semi-cohesive	
		S-5		1.2	150.0		8.0'-10.0' SAND: trace silt, medium-fine, brow to dark tan, loose, damp, non-cohesive Water @ 10.0'	9.5'-10.0' SB40-3 CLPSV, TAL, CN PEST/PCB, CLPVOA
10.0		S-6		1.0	300.0		10.0'-12.0' As above, SAND: trace silt, medium coarse, some gravel, wet @ 10.0', no sample below WT, dark gray to black	
190		S-7		1.3	71.0		12.0'-13.7' As above, SAND: medium-coarse 13.7'-14.0' SILT: trace clay, brown, wet cohesive, no readings in the silty clay	
	15.0						TOTAL DEPTH = 14.0 FEET	
185								
	20.0							
180								

300152

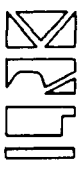
BORING LOG

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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: S841 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.53						TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.	
DRILLING CO: JCA						DRILLER: W. Reeve		LRK INSPECTOR: E. Sciulli	
DRILLING METHOD: Geoprobe						RIG TYPE: Geoprobe			
DATE STARTED: 6/18/97						WATER LEVEL DEPTH: N/A		FT; TIME: N/A	
COMPLETED: 6/18/97						N/A		FT; TIME: N/A	
ELEV (FT)		DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	1.5	0.0				0.0'-1.0' CONCRETE and GRAVEL	1.5'-2.0' S841-1 CLPSV, TAL, CN PEST/PCB
								1.0'-1.5' BRICK	
								1.5'-3.0' SAND: black, loose, medium-coarse cinders, gravel	
								3.0'-4.5' As above	
195	5.0	S-2	1.4	0.0				4.5'-5.0' SAND: trace silt, brown	2.0'-2.5' S841-3 CLPVOA
								5.0'-7.0' As above	
190	10.0	S-3	1.3	0.0				Water @ 6.0'	4.5'-5.0' S841-4 CLPSV, TAL, CN PEST/PCB CLPVOA
								TOTAL DEPTH = 7.0 FEET	
185	15.0								
180	20.0								

BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB42 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124</p>
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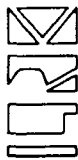
LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.46	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/16/97	WATER LEVEL DEPTH: N/A	FT; TIME: N/A
COMPLETED: 6/16/97	N/A	FT; TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE	
		S-1		1.5	1.8		0.5'-2.0' SILT: trace medium-fine sand, brown to orange brown, damp, non-cohesive, loose occas. medium gravel, 2 spoons to get volume	0.5'-1.0' SB42-1 CLPSV, TAL, CN PEST/PCB SB42-2 duplicate 1.5'-2.0' SB42-3 CLPVOA
		S-2		1.0	1.6		2.0'-3.8' As above, brown to orange brown silt, trace medium-fine sand	
	5.0	S-3		0.2	N/A		3.8'-4.0' CINDERS: black, loose, very damp	3.5'-4.0' SB42-5 CLPSV, TAL, CN PEST/PCB CLPVOA
							4.0'-6.0' No recovery - cinders very damp	
185		S-4		0.6	1.8		6.0'-8.0' SAND: medium-coarse, trace silt, wet loose, occasional gravel, brown to dark brown	
		S-5		1.8	635.0		8.0'-10.0' SAND: medium-coarse, trace silt, dark gray to black, loose, wet, occasional gravel, water @ 8.0'	
180	10.0						TOTAL DEPTH = 10.0 FEET	
190								
	15.0							
185								
	20.0							
180								

300154

BORING LOG

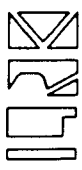
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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB43 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.33						TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F	
DRILLING CO: JCA						DRILLER: W. Reeve		LRK INSPECTOR: E. Sciulli	
DRILLING METHOD: Geoprobe						RIG TYPE: Geoprobe			
DATE STARTED: 6/16/97						WATER LEVEL DEPTH: N/A		FT. TIME: N/A	
COMPLETED: 6/16/97						N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
200		S-1		1.1	5.3		0.5'-2.0' SAND: medium-fine, s. silt, brown to orange brown, dry, non-cohesive	0.5'-1.0' SB43-1 CLPSV, TAL, CN PEST/PCB
		S-2		1.5	2.5		2.0'-3.5' SILT: trace medium-fine sand, brown to orange brown, moist, cohesive	1.0'-1.5' SB43-2 CLPVOA
							3.5'-4.0' SAND: medium-coarse grained, black, cinders	3.5'-4.0' SB43-3 CLPSV, TAL, CN PEST/PCB
150	5.0	S-3		0.2	N/A		4.0'-6.0' As above, combustion by product cinders, slag	
		S-4		1.1	965.0		6.0'-8.0' SAND: medium-fine, trace silt, dark gray to black, fuel odor	
							8.0'-9.5' As above	
		S-5		1.2	156.0		9.5'-10.0' SILT: trace medium fine sand organic, dark gray to black, wet, water @ 8.0'	6.5'-7.0' SB43-4 CLPVOA
100	10.0	S-6		1.3	200.0		10.0'-11.8' As above, SILT: trace fine to very fine sand, dark brown to black, organic	
							11.8'-12.0' SAND: wet, light gray, medium-fine loose	
		S-7		1.3	1068		12.0'-14.0' SAND: trace silt, light gray to gr medium-fine, occasional small gravel, fuel odor, saturated	
150	15.0						TOTAL DEPTH = 14.0 FEET	
180	20.0							

BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB44 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124</p>
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LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.31	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/17/97	WATER LEVEL DEPTH: N/A	FT. TIME: N/A
COMPLETED: 6/17/97	N/A	FT. TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE and GRAVEL	
		S-1		1.5	N/A		0.5'-1.0' SAND: s. silt, medium-fine, occasional gravel, cinders	0.5'-1.5' SB44-1 CLPSV, TAL, CN, PEST/PCB dioxin/furan
		S-2		1.0	N/A		1.0'-2.0' SILT: s. sand, medium-fine, brown to orange brown, non-cohesive, damp	1.5'-2.0' SB44-2 CLPVOA
	5.0	S-3		1.6	2.0		2.0'-3.0' SAND: trace silt, medium-fine, brown, loose, brick fragments 3.0'-4.0' SAND: medium-coarse, black, cinders, gravel	
195		S-4		0.8	550		4.0'-6.0' As above, black cinders, gravel, medium-coarse sand Very damp @ 6.0'	5.5'-6.0' SB44-3 CLPSV, TAL, CN, PEST/PCB CLPVOA
	10.0						6.0'-7.5' As above, saturated 7.5'-8.0' SILTY CLAY: dark gray to black, high FID in saturated silt, organic odor	
190							TOTAL DEPTH = 8.0 FEET	
	15.0							
185								
	20.0							
180								

300156

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB45
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.41	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/16/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 6/16/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE	
		S-1		1.2	2.5		0.5'-2.0' SAND: s. silt, brown to orange brown, medium-fine, coarse, damp	0.5'-1.0' SB45-1 CLPSV, TAL, CN PEST/PCB
		S-2		1.0	3.0		2.0'-4.0' As above, SAND: s. silt, brown to orange brown, medium-fine, damp	1.5'-2.0' SB45-2 CLPVOA
195	5.0	S-3		0.3	2.5		4.0'-6.0' As above, bottom 2" black sand with cinders, very damp, loose, gravelly	
		S-4		1.0	50.0		6.0'-8.0' GRAVEL: coarse, black, organic odor, very coarse, very damp	7.5'-8.0' SB45-3 CLPSV, TAL, CN PEST/PCB
		S-5		1.3	1100		8.0'-10.0' SAND: trace silt, medium-fine, occasional small gravel, loose, gray to dark gray, wet @ 8.5'	8.0'-8.5' SB45-4 CLPVOA
190	10.0						TOTAL DEPTH = 10.0 FEET	SB45-A8 (Ambient blank)
185	15.0							
180	20.0							

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB46
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.32	TOP OF CASING: --	WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA	DRILLER: W. Reeve	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Geoprobe	RIG TYPE: Geoprobe	
DATE STARTED: 6/17/97	WATER LEVEL DEPTH: N/A	FT. TIME: N/A
COMPLETED: 6/17/97	N/A	FT. TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE and GRAVEL	
		S-1		1.8	N/A		0.5'-2.0' SILT: trace sand, dark brown to black, loose, gravelly, cinders	0.5'-1.0' SB46-1 CLPSV, TAL, CN PEST/PCB
		S-2		0.1	N/A		2.0'-4.0' As above, no to little recovery	1.5'-2.0' SB46-2 CLPYOA
	5.0	S-3		1.0	N/A		4.0'-6.0' As above, very damp, brick fragments	
195		S-4		1.0	104		6.0'-8.0' SAND: trace silt, medium-coarse, dark gray to black, occasional gravel grading to silty clay, very damp @ 7.2'	7.0'-7.5' SB46-3 CLPSV, TAL, CN PEST/PCB CLPYOA
		S-5		1.0	1250		8.0'-10.0' SAND: trace silt, medium-coarse, dark gray to black, wet, odor	
	10.0						Wet @ 8.0'	
190							TOTAL DEPTH = 10.0 FEET	
	15.0							
185								
	20.0							
180								

BORING LOG

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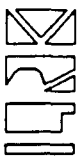
 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB47 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.3		TOP OF CASING: --		WEATHER: Hot, Humid, 80 degs. F.					
DRILLING CO: JCA		DRILLER: W. Reeve		LRK INSPECTOR: E. Sciulli					
DRILLING METHOD: Geoprobe				RIG TYPE: Geoprobe					
DATE STARTED: 6/17/97		WATER LEVEL DEPTH: N/A		FT. TIME: N/A		DATE: N/A			
COMPLETED: 6/17/97		N/A		FT. TIME: N/A		DATE: N/A			

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE	
		S-1		1.1	2.0		0.5'-2.0' SILT: sandy, medium-coarse sand, brown to black, loose, some cinders, gravel	0.5'-1.0' SB47-1 CLPSV, TAL, CN PEST/PCB
		S-2		0.1	N/A		2.0'-4.0' As above, no recovery	1.5'-2.0' SB47-2 CLPVOA
							4.0'-6.0' As above, brick fragments	
	195	S-3		0.4	2.5			
190		S-4		1.1	452.0		6.0'-8.0' SILT: trace sand, gray to black, cohesive, very damp, organic	6.5'-7.0' SB47-3 CLPVOA
		S-5		1.2	-		8.0'-10.0' As above, grading to sand Wet @ 9.0'	7.5'-8.5' SB47-4 CLPVOA
	180						TOTAL DEPTH = 10.0 FEET	

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 <p> L. ROBERT KIMBALL & ASSOCIATES INC 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700 </p>	<p>BORING NO: <u>SB48</u></p> <p>PROJECT: <u>MARTIN AARON RI/RAA</u></p> <p>PROJECT NO: <u>96-1322-A124</u></p>
--	---

LOCATION: <u>Martin Aaron Site</u>	COORD EAST: <u>-</u>	NORTH: <u>-</u>
SURFACE ELEV: <u>201.93</u>	TOP OF CASING: <u>--</u>	WEATHER: <u>Sunny, hot, 100 degs. F.</u>
DRILLING CO: <u>JCA</u>	DRILLER: <u>J. Urban</u>	LRK INSPECTOR: <u>E. Sciulli</u>
DRILLING METHOD: <u>Hollow Stem Auger</u>	RIG TYPE: <u>Failing</u>	
DATE STARTED: <u>7/22/97</u>	WATER LEVEL DEPTH: <u>N/A</u> FT.	TIME: <u>N/A</u> DATE: <u>N/A</u>
COMPLETED: <u>7/22/97</u>	<u>N/A</u> FT.	TIME: <u>N/A</u> DATE: <u>N/A</u>

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' SAND: trace silt, black with cinders, ash	
200		S-1		1.5	10			0.5'-1.0' SB48-1 CLPSV, TAL, CN, PEST/PCB
		S-2		2.0	48.0		2.0'-4.0' As above, cinders, slag, loose, no odor, dry	1.5'-2.0' SB48-2 CLPVOA
5.0		S-3		1.8	650		4.0'-6.0' SAND: some silt, black, slight fuel odor, some cinders and slag	SB48-3 Not analyzed
15		S-4		1.5	2000		6.0'-8.0' As above, less cinders, sand @ 7.5', green, medium-fine, loose, saturated	
		S-5		1.5	350		8.0'-10.0' SAND: trace silt, brown with green streaks, medium-fine, @ 9.0' clayey silt, greenish gray, saturated	7.0'-7.5' SB48-4 CLPVOA, TAL, CN, CLPSV, PEST/PCB
10.0		S-6		1.0	67.0		10.0'-12.0' SAND: trace silt, brown, saturated oily sheen in spoon, fuel odor	
190							TOTAL DEPTH = 12.0 FEET	
	15.0							
185								
	20.0							
180								

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L. ROBERT KIMBALL & ASSOCIATES INC.
615 W HIGHLAND AVE. P.O. BOX 1000
EBensburg PA 15931
TELEPHONE: (814) 472-7700

BORING NO: SB49

PROJECT: MARTIN AARON RI/RAA

PROJECT NO: 96-1322-A124

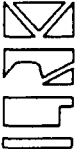
LOCATION: Martin Aaron Site COORD EAST: - NORTH: -
SURFACE ELEV: 201.87 TOP OF CASING: -- WEATHER: Hot, Humid, 80 degs. F.
DRILLING CO: JCA DRILLER: W. Reeve LRK INSPECTOR: E. Scialli
DRILLING METHOD: Geoprobe RIG TYPE: Geoprobe
DATE STARTED: 6/19/97 WATER LEVEL DEPTH: N/A FT: TIME: N/A DATE: N/A
COMPLETED: 6/19/97 N/A FT: TIME: N/A DATE: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1		0.3	0.0		0.0'-0.5' CONCRETE and GRAVEL 0.5'-1.0' FILL 1.0'-1.5' CONCRETE, gravel, small vein space 1.5'-2.0' CINDER ASH GRAVEL: loose	0.0'-2.0' Not enough recovery to sample
		S-2		1.0	35.0		2.0'-4.0' As above, cinder, ash gravel, medium-fine sand, brown, loose	2.0'-3.0' SB49-1 CLPSV, TAL, CN, PEST/PCB CLPVOA
195	5.0	S-3		1.2	0.0		4.0'-6.0' SAND: s. silt, brown to dark brown, some small to medium gravel, cinders, ash # 5.8' cinders and ash, black Wet # 6.0'	5.0'-5.5' SB49-2 CLPSV, TAL, CN PEST/PCB CLPVOA
		S-4		1.0	0.0'		6.0'-8.0' As above	
							TOTAL DEPTH = 8.0 FEET	
190	10.0							
185	15.0							
180	20.0							

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB50
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

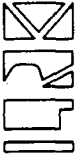
LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.57	TOP OF CASING: --	WEATHER: Sunny, hot, 100 degs. F.
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Hollow Stem Augers	RIG TYPE: Failing	
DATE STARTED: 7/21/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/21/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	5 5 6 15	0.2	471		0.0'-0.5' CONCRETE 0.5'-2.0' GRAVEL, cinders	Not enough recovery for sample
		S-2	2 1 4 5	1.3	59		2.0'-4.0' SAND: trace silt, dark brown to black, @ 3.0' light tan to white clayey silt, some slag, slag ash, cinders @ 3.5'-4.0'	
150	5.0	S-3	3 1 1 2	1.0	2100		4.0'-6.0' SAND: trace silt, reddish brown and green streaks, fuel odor	5.5'-6.0' SB50-1 CLPVOA, TPH
		S-4	3 2 1 1	1.0	43		6.0'-7.5' SAND: trace silt, brown, very damp to wet, @ 7.5' clayey silt, grey with some black staining	Not enough recovery for full scan
		S-5	2 1 1 3	1.8	115		8.0'-10.0' As above, clayey silt, saturated	
130	10.0	S-6	1 1 2 3	1.3	41		10.0'-12.0' As above, clayey silt, some cinders, slag, bottom of spoon, wet	
		S-7	1 1 1 4	1.0	64		12.0'-14.0' Cinders as above, wet	
110	15.0						TOTAL DEPTH = 14.0 FEET	
100								
90								
80								
70								
60								
50								
40								
30								
20								
10								
0								

300162

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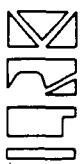
 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB51 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.47						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA			DRILLER: J. Urban			LRK INSPECTOR: E. Sciulli			
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/21/97			WATER LEVEL DEPTH: N/A			FT: TIME: N/A		DATE: N/A	
COMPLETED: 7/21/97			N/A			FT: TIME: N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0		0				0.0'-0.5' CONCRETE	
		S-1	11 8 7	1.3	71		0.5'-2.0' SAND: trace silt, black, tight, turning green @ 1.7', ash, cinders 1.7' to 2.0'	
		S-2	3 3 7 11	1.5	153		2.0'-4.0' SAND: as above, ash, cinders, brick at 3.8' to 4.0'	
	5.0	S-3	5 5 3 5	1.0	2100		4.0'-6.0' As above, cinder, ash, brick, sand, trace silt, brown with green lenses, fuel odor	
15		S-4		0.0	N/A		6.0'-8.0' No recovery, refusal @ 7.0', scraps of wood, possible RR ballast in cutting	
							TOTAL DEPTH = 8.0 FEET	Refusal @ 5.0' Move 2.0' auger to 4.0' 5.5'-6.0' SB51-1 CLP/VD, CL/PSV, PEST/PCB, CM, TAL, TPH
	10.0							
190								
	15.0							
185								
	20.0							
180								

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 <p> L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700 </p>	<p>BORING NO: <u>SB52</u></p> <p>PROJECT: <u>MARTIN AARON RI/RAA</u></p> <p>PROJECT NO: <u>96-1322-A124</u></p>
LOCATION: <u>Martin Aaron Site</u> COORD EAST: <u>-</u> NORTH: <u>-</u>	
SURFACE ELEV: <u>201.5</u> TOP OF CASING: <u>--</u> WEATHER: <u>Sunny, hot, 100 degs. F.</u>	
DRILLING CO: <u>JCA</u> DRILLER: <u>J. Urban</u> LRK INSPECTOR: <u>E. Sciulli</u>	
DRILLING METHOD: <u>Hollow Stem Auger</u> RIG TYPE: <u>Failing</u>	
DATE STARTED: <u>7/21/97</u> WATER LEVEL DEPTH: <u>N/A</u> FT: <u>N/A</u> TIME: <u>N/A</u> DATE: <u>N/A</u>	
COMPLETED: <u>7/21/97</u> <u>N/A</u> FT: <u>N/A</u> TIME: <u>N/A</u> DATE: <u>N/A</u>	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0						0.0'-0.5' CONCRETE	5.0'-5.5' SB52-1 CLPVOA, CLPSV, PEST/PCB, TAL, CN, TPH
		S-1	5 5 4 9	1.5	580		0.5'-2.0' SAND: some silt, cinders, gravel, black, fuel odor	
		S-2	11	0.3	119		2.0'-3.0' As above, sand, ash, cinders, loose, stained black, fuel odor	
		S-3	15	1.0	200		3.0'-4.0' CINDERS: brick fragments, yellow orange slag, ash combustion, by product, hard	
		S-4	4 4 3 2	1.7	2100		4.0'-5.0' As above	
		S-5	2 1 1 1	1.3	55		5.0'-6.0' SAND: trace silt, brown, green lenses, stained black, damp, fuel odor	
185		S-6	1 1 1 2	2.0	171		6.0'-8.0' As above, wet @ 7.0', sheen (oily), on water in spoon	
							8.0'-10.0' SILT: dark brown, greenish tint, cohesive, saturated organic material	
180	10.0						TOTAL DEPTH = 10.0 FEET	
170								
160								
150								
140								
130								
120								
110								
100								

300164

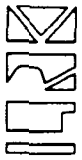
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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB53 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.53						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban		LRK INSPECTOR: E. Sciulli	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/21/97						WATER LEVEL DEPTH: N/A		FT: TIME: N/A	
COMPLETED: 7/21/97						N/A		FT: TIME: N/A	
ELEV (FT)		DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0							0.0'-0.5' CONCRETE	3.5'-4.0' SB53-1 CLPYOA, CLPSY, TAL, CN, PEST/PCB, TPH 7.5'-8.0' SB53-2 TPH
		S-1	0 7 12 11	0.7	249			0.5'-2.0' SAND: trace silt, dark brown to black fuel odor, brick fragments, cinders, ash	
		S-2	5 1 3 6	1.0	1200			2.0'-4.0' As above, 3.0' sand, trace silt, loose, brown stained black, fuel odor	
	5.0	S-3	5 9 11 6	1.0	799			4.0'-6.0' As above, more cinders, ash fill material	
	195	S-4	2 1 3 2	0.7	228			6.0'-8.0' SAND: trace silt, brown, medium-fine damp, stained black, oily, sheen on spoon	
		S-5	2 1 3 5	0.8	59			8.0'-10.0' SILT: trace sand, dark brown, organic, saturated, stained, black fuel odor	
10.0								TOTAL DEPTH = 10.0 FEET	
190									
15.0									
185									
20.0									
190									

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: <u>S854</u></p> <p>PROJECT: <u>MARTIN AARON RI/RAA</u></p> <p>PROJECT NO: <u>96-1322-A124</u></p>
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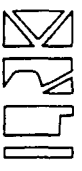
LOCATION: <u>Martin Aaron Site</u>	COORD EAST: <u>-</u>	NORTH: <u>-</u>
SURFACE ELEV: <u>201.55</u>	TOP OF CASING: <u>--</u>	WEATHER: <u>Sunny, hot, 100 degs. F.</u>
DRILLING CO: <u>JCA</u>	DRILLER: <u>J. Urban</u>	LRK INSPECTOR: <u>E. Sciulli</u>
DRILLING METHOD: <u>Hollow Stem Auger</u>	RIG TYPE: <u>Failing</u>	
DATE STARTED: <u>7/21/97</u>	WATER LEVEL DEPTH: <u>N/A</u>	FT; TIME: <u>N/A</u>
COMPLETED: <u>7/21/97</u>	<u>N/A</u>	FT; TIME: <u>N/A</u>

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
200		S-1	10 9 14	0.7	893.5		0.5'-2.0' CINDERS, sand, silt, odor, loose	1.5'-2.0' S854-1 CLP VOA
		S-2	4 3 2 2	1.0	15		2.0'-4.0' As above	
150	5.0	S-3	4 8 15 24	1.3	144		4.0'-6.0' As above, @ 5.0' sand, trace silt, brown, medium-fine, some black staining, loose	
		S-4	16 15 14 7	1.0	585		6.0'-8.0' SAND: trace silt, brown, medium-fine stained black, fuel odor, damp to wet at 8.0'	
		S-5	5 2 2 2	1.2	28	---	8.0'-10.0' SILT: trace sand, green-gray to black, wet @ 8.5', saturated some organic material	7.5'-8.0' S854-2 CLPVOA, CLPSV, PEST/PCB, TAL, CN, TPH
100	10.0						TOTAL DEPTH = 10.0 FEET	
150								
185								
200								
180								

300166

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB55
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.56	TOP OF CASING: --	WEATHER: Sunny, hot, 100 degs. F.
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 7/21/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/21/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0		0				0.0'-0.5' CONCRETE	
200		S-1	8 11 20	1.0	0		0.5'-2.0' SAND: some silt, loose, dark brown to black, slight odor, dry	
		S-2	10 13 10 7	1.3	15		2.0'-4.0' SAND: some silt, as above, cinders, ash, loose	
150	5.0	S-3	2 3	0.3	0		4.0'-5.0' As above, refusal @ 5.0' wood in spoon, will try to auger 5.0'-6.0'	3.5'-4.0' SB55-1 CLPVOA, CLPSV, PEST/PCB, CN, TAL
		S-4	5 4 4 6	0.4	5		6.0'-8.0' SILT: some sand, fine-very fine, dark brown to black, very damp @ 5.0', slight odor	
		S-5	4 3 2 1	1.2	38		8.0'-10.0' As above, saturated @ 8.0' slight odor	6.5'-7.0' SB55-2 TPH
100	10.0						TOTAL DEPTH = 10.0 FEET	
190								
	15.0							
185								
	20.0							
180								

BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: SB56</p> <p>PROJECT: MARTIN AARON RI/RAA</p> <p>PROJECT NO: 96-1322-A124</p>
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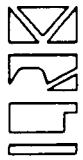
LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.63	TOP OF CASING: --	WEATHER: Sunny, hot, 100 degs. F.
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: E. Sciuilli
DRILLING METHOD: Hollow Stem Auger		RIG TYPE: Failing
DATE STARTED: 7/22/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/22/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
200		S-1		1.5	0		0.5'-2.0' SAND: trace silt, black, loose grading to brown @ 1.5', some cinders and slag, no odor	
		S-2		0.3	0		2.0'-4.0' SAND: brown, as above, brick in end of spoon	
50		S-3		1.3	596		4.0'-6.0' SAND: some silt, black cinders, slag, fuel odor	SB56-1 Not analyzed
15		S-4		1.5	1900		6.0'-7.0' As above 7.0'-7.5' CLAYEY SILT: white, semi-cohesive 7.5'-8.0' SAND: trace silt, green tint, very damp to wet, strong odor	6.5'-7.0' SB56-2 CLPVOA, CLPSV, PEST/PCB, TAL, CN, TPH SB56-AB Ambient blank
		S-5		1.8	48		8.0'-10.0' SAND: trace silt, medium-fine, brown with green ting as above, wet grading to gray-green silt, @ 9.0' saturated	
10.0		S-6		1.8	52		10.0'-12.0' SILTY CLAY: brown, semi-cohesive, organic matter, saturated, bottom 0.3' of spoon sand, medium-fine, brown, saturated	
190							TOTAL DEPTH = 12.0 FEET	
15.0								
185								
20.0								
180								

300168

BORING LOG


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 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB57 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124			
LOCATION: Martin Aaron Site						COORD EAST: -		NORTH: -	
SURFACE ELEV: 201.54						TOP OF CASING: --		WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA			DRILLER: J. Urban			LRK INSPECTOR: E. Sciuilli			
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing			
DATE STARTED: 7/22/97			WATER LEVEL DEPTH: N/A			FT: TIME: N/A		DATE: N/A	
COMPLETED: 7/22/97			N/A			FT: TIME: N/A		DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-2.0' SAND: some silt, dark brown to black, loose, some cinders, slag @ 1.5'-2.0', dry	6.5'-7.0' SB57-1 CLPSV, CLPVOA, PEST/PCB, TAL CN, TPH SB57-2 duplicate High PID 191 in saturated sand @ 12.0'
200		S-1		1.7	1.5		2.0'-4.0' As above, dry turning more brown black @ 3.75'	
		S-2		2.0	119.5		4.0'-6.0' As above, black, slight fuel odor, sheen observed at bottom of spoon, very damp to wet	
150	5.0	S-3		1.7	69.0		6.0'-7.0' As above	
		S-4		1.8	166.0		7.0'-7.5' CLAYEY SILT: white, semi-cohesive	
		S-5		1.5	120		7.5'-8.0' SAND: green, medium-fine, loose, saturated	
100	10.0						8.0'-9.0' SAND: green, as above	
		S-6		1.0	45		9.0'-10.0' CLAYEY SILT: gray green to brown, saturated	
150							10.0'-12.0' CLAYEY SILT: as above, organic matter, saturated, @ 12.7' SAND: trace silt, medium-fine, loose, saturated	
							TOTAL DEPTH = 12.0 FEET	
180	20.0							

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB58
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

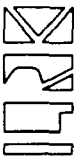
LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.56	TOP OF CASING: --	WEATHER: Sunny, hot, 100 degs. F.
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 7/22/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/22/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
200		S-1		2.0	8.4		0.5'-2.0' SAND: silt, tight, few cinders, slag, dry, black turning brown at depth	
		S-2		1.8	650		2.0'-4.0' As above, more cinders and slag, broken glass	
195	5.0	S-3		2.0	2020		4.0'-6.0' As above, cinders and slag, fuel odor, damp, oily sheen	
		S-4		1.0	1300		6.0'-8.0' SAND: trace silt, brown with black staining saturated, oily sheen in spoon, grading to clayey silt bottom 0.3' of spoon	
		S-5		0.4	117		8.0'-10.0' SAND: as above, trace silt, brown, saturated	
190	10.0						TOTAL DEPTH = 10.5 FEET	5.5'-6.0' SB58-1 CLPVOA, CLPSY, TAL, CN, PEST/PCB, TPH
185	15.0							
180	20.0							

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BORING LOG

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 <p>L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700</p>	<p>BORING NO: <u>S859</u></p> <p>PROJECT <u>MARTIN AARON RI/RAA</u></p> <p>PROJECT NO: <u>96-1322-A124</u></p>
--	--


LOCATION: <u>Martin Aaron Site</u>	COORD EAST: <u>-</u>	NORTH: <u>-</u>
SURFACE ELEV: <u>201.78</u>	TOP OF CASING: <u>--</u>	WEATHER: <u>Sunny, hot, 100 degs. F.</u>
DRILLING CO: <u>JCA</u>	DRILLER: <u>J Urban</u>	LARK INSPECTOR: <u>E. Sciulli</u>
DRILLING METHOD: <u>Hollow Stem auger</u>		RIG TYPE: <u>Fulling</u>
DATE STARTED: <u>7/22/97</u>	WATER LEVEL DEPTH: <u>N/A</u>	FT: <u>N/A</u> DATE: <u>N/A</u>
COMPLETED: <u>7/22/97</u>	<u>N/A</u>	FT: <u>N/A</u> DATE: <u>N/A</u>

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC. (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
		S-1		1.0	1.8		0.5'-2.0' SAND: some silt, dark brown to black, tight, dry	
		S-2		1.2	17.0		2.0'-4.0' SAND: some silt as above, cinders, slag, combustion by products	
	5.0	S-3		1.5	659		4.0'-6.0' As above, cinders, slag, oil staining, fuel odor	
	15.5	S-4		1.0	100		6.0'-8.0' As above, saturated, @ 7.0' sand, trace silt, brown with green streaks, fuel odor	5.5'-6.0' S859-1 CLPYDA, CLPSV, TAL, CN PEST/PCB, TPH
		S-5		1.2	275		8.0'-10.0' SAND: as above, brown with green streaks, clayey silt @ 9.5', saturated	
	10.0	S-6			200		10.0'-10.5' CLAYEY SILT: as above, organic material	
	19.0						10.5'-12.0' SAND: trace silt, medium-fine, loose, saturated	
							TOTAL DEPTH = 12.5 FEET	
	15.0							
	18.5							
	20.0							
19.0								

300171

BORING LOG

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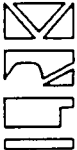
 L. ROBERT KIMBALL & ASSOCIATES INC. 615 W HIGHLAND AVE. P.O. BOX 1000 EBENSBURG PA 15931 TELEPHONE: (814) 472-7700						BORING NO: SB60 PROJECT: MARTIN AARON RI/RAA PROJECT NO: 96-1322-A124	
LOCATION: Martin Aaron Site						COORD EAST: - NORTH: -	
SURFACE ELEV: 202.14						TOP OF CASING: -- WEATHER: Sunny, hot, 100 degs. F.	
DRILLING CO: JCA						DRILLER: J. Urban LRK INSPECTOR: E. Sciulli	
DRILLING METHOD: Hollow Stem Auger						RIG TYPE: Failing	
DATE STARTED: 7/21/97						WATER LEVEL DEPTH: N/A FT. TIME: N/A DATE: N/A	
COMPLETED: 7/21/97						N/A FT. TIME: N/A DATE: N/A	

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
200	0.0	S-1	6 12 11 35	1.2	18		0.0'-2.0' CINDERS: ash, gravel, fill, loose	3.5'-4.0' SB60-1 CLPYOA, CLPSV, PEST/PCB, TAL, CN, TPH
		S-2	6 9 7 5	1.0	450		2.0'-4.0' SAND: trace silt, green with black staining, slight odor	
150	5.0	S-3	1 3 4 9	0.3	67		4.0'-6.0' CINDERS: ash, gravel, wood chips, wood in end of spoon	
		S-4	4 2 11 21	1.0	136		6.0'-8.0' CINDERS: ash, wood as above, wet, slight fuel odor, wood in end of spoon, wet	
100		S-5	7 4 3 5	0.0	N/A		No recovery	
		S-6	4 3 6 1	0.0	N/A		No recovery	
150	12.0	S-7	3 1 1 2	1.2	181		12.0'-14.0' SILTY CLAY: greenish gray, semi-cohesive, wet	
		S-8	3 5 6 7	1.0	350		14.0'-16.0' SAND: medium-fine, some small, quartz pebbles, loose, saturated, light tan	
185							TOTAL DEPTH = 16.0 FEET	
200								

300172

BORING LOG

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	L. ROBERT KIMBALL & ASSOCIATES INC.	BORING NO: SB61
	615 W HIGHLAND AVE. P.O. BOX 1000	PROJECT: MARTIN AARON RI/RAA
	EBENSBURG PA 15931	PROJECT NO: 96-1322-A124
	TELEPHONE: (814) 472-7700	

LOCATION: Martin Aaron Site	COORD EAST: -	NORTH: -
SURFACE ELEV: 201.96	TOP OF CASING: --	WEATHER: Sunny, hot, 100 degs F
DRILLING CO: JCA	DRILLER: J. Urban	LRK INSPECTOR: E. Sciulli
DRILLING METHOD: Hollow Stem Auger	RIG TYPE: Failing	
DATE STARTED: 7/22/97	WATER LEVEL DEPTH: N/A	FT: TIME: N/A
COMPLETED: 7/22/97	N/A	FT: TIME: N/A

ELEV (FT)	DEPTH (FT)	SAMPLE NO	SPT	REC (FT)	FID (PPM)	PROF	DESCRIPTION	REMARKS
	0.0						0.0'-0.5' CONCRETE	
		S-1		1.2	354		0.5'-2.0' SAND: some silt, dark brown to black, tight, dry, fuel odor	
		S-2		1.0	794		2.0'-4.0' As above, some cinders, slag, wood chips in tip of spoon, fuel odor	
	5.0	S-3		0	N/A		4.0'-6.0' SAND: trace silt, brown with green streaks, loose, saturated, fuel odor	3.5'-4.0' SB61-1 CLPVOA, CLPSV, TAL, CN, PEST/PCB, TPH Auger refusal @ 4.5' Move over 1' and restart hole
	15.0	S-6		0.2	N/A		6.0'-7.0' Refusal @ 7.0' no recovery wood in spoon	2.0'-4.0' S-4 Recovery 1.0', PID 850 4.0'-6.0' S-5 Recovery: 0.5', PID 350
							TOTAL DEPTH = 8.0 FEET	
	10.0							
	19.0							
	15.0							
	18.5							
	20.0							

300173

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB63		
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION		USC	SOIL SYMBOL	FIELD DATA
0.0				0.0'-0.5' GRAVEL				S1 Recovery: 1.2'/2.0' PID: 15.1
				0.5'-2.0' SILTY SAND: brown, loose, brick and concrete fragments				0.5'-1.0' SB63-1 SVOA, Pest/PCB, TAL, CN 0.5'-1.0' SB63-2 Dup. SVOA, Pest/PCB, TAL, CN 1.0'-1.5' SB63-3 VOA
				2.0'-4.0' As above, dark brown, more silt, dry, slight odor at 4.0', stained				S2 Recovery: PID: >1000 @ 3.5'-4.0'
				4.0'-6.0' Two attempts; no recovery				3.5'-4.0' SB63-4 SVOA, Pest/PCB, TAL, CN, VOA S3 Recovery: 0.0'/2.0' PID:
-5.0				6.0'-8.0' ORGANIC PEAT: dark brown to black, wet (saturated)				S4 Recovery: 1.0'/2.0' PID: >1000
				TOTAL DEPTH = 8.0 FEET				
-10.0								
L. ROBERT KIMBALL & ASSOCIATES			LOGGED BY: M.EBEL			COMPLETION DEPTH: 8.0 ft		
Ebensburg, Pennsylvania			REVIEWED BY: E.SCIULLI			COMPLETE: 09/29/98		
			Fig. No:			Page 1 of 1		

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB64						
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123						
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)						
AMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core												
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
▲ "N" value ▲												
20	40	60	80									
0.0								0.0'-0.6' GRAVEL			S1 Recovery: 2.0'/2.0' PID: 0.0	0.0
		S1						0.6'-2.0' SILTY SAND: dark brown, loose, brick fragments, glass			0.5'-1.0' SB64-1 SVOA,Pest/PCB,TAL,CN 1.0'-1.5' SB64-2 VOA 1.0'-1.5' SB64-3 Dup. VOA	
		S2						2.0'-8.0' As above, turning more black, concrete, brick, some cinders @ 4.0', brown, olive green, medium to fine, (becoming more silty with depth)			S2 Recovery: 1.5'/2.0' PID: 1.4	
-5.0		S3									S3 Recovery: 2.0'/2.0' PID: 143	-5.0
		S4									S4 Recovery: 1.0'/2.0' PID: 285 6.0'-6.5' SB64-4 VOA,SVOA,Pest/PCB,TAL,CN	
								Wet @ 7.5' (saturated)				
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES
Ebensburg, Pennsylvania

LOGGED BY: M.EBEL
REVIEWED BY: E.SCIULLI
Fig. No:

COMPLETION DEPTH: 8.0 ft
COMPLETE: 09/29/98

MARTIN AARON			START DATE: 09/30/98			BOREHOLE No: 96C123_SB65		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-2.0' SAND: brown and gray, moist, and ash cinders, @ 1.5' white material						S1 Recovery: 2.0'/2.0' PID/FID: 300/0.0 0.0'-1.0' SB65-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1									1.5'-2.0' SB65-2 VOA	
					2.0'-4.0' SAND: gray, moist, ash and cinders						S2 Recovery: 1.0'/2.0' PID/FID: 23.1/0.0	
		S2										
					4.0'-6.0' SAND: brown, moist, ash and cinders, concrete and brick						S3 Recovery: 1.5'/2.0' PID/FID: 100/0.0	
-5.0												-5.0
		S3										
					6.0'-8.0' SAND: gray, brown and black, moist, silty clay @ 7.5', water @ 7.5'						S4 Recovery: 1.5'/2.0' PID/FID: 100/3.8 6.0'-7.0' SB65-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S4										
					TOTAL DEPTH = 8.0 FEET							
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON				START DATE: 09/30/98				BOREHOLE No: 96C123_SB66			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70's				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-2.0' SILTY SAND: brown, moist, with wood and gravel, brick @ 1.6'			S1 Recovery: 2.0'/2.0' PID/FID: 875/0.0 0.0'-1.0' SB66-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1									1.0'-1.5' SB66-2 VOA	
								2.0'-4.0' SAND: brown, moist, ash and cinders			S2 Recovery: 1.5'/2.0' PID/FID: 315/0.0	
		S2										
								4.0'-6.0' Ash, cinders and rock fragments, moist			S3 Recovery: 1.5'/2.0' PID/FID: 100/0.0	
-5.0												-5.0
		S3										
								6.0'-8.0' SILTY SAND: gray and black, moist, 1.0' of black silty clay			S4 Recovery: 2.0'/2.0' PID/FID: 415/0.0 6.5'-7.0' SB66-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S4										
								8.0'-10.0' SILTY CLAY: black, moist, light brown, medium sand, wet			S5 Recovery: 2.0'/2.0' PID/FID: 100/0.0	
		S5										
-10.0								10.0'-12.0' SAND: light brown, wet, medium			S6 Recovery: 1.5'/2.0' PID/FID: 100/0.0	-10.0
		S6										
								TOTAL DEPTH = 12.0 FEET				

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 12.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 09/30/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON				START DATE: 09/29/98				BOREHOLE No: 96C123_SB67			
LOCATION: CAMDEN, NJ				WEATHER: CLEAR, 70's				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE				<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core							

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-8.0' SILTY SAND: brown, loose, gravel						S1 Recovery: 1.0'/2.0' PID: 0.0 0.5'-1.0' SB67-1 SVOA,PEST/PCB,TAL,CN	0.0
		S1										
											1.5'-2.0' SB67-2 VOA	
		S2									S2 Recovery: 1.5'/2.0' PID: 5.6	
					4.0'-6.0' Grading to more silt, mottled olive green, very damp @ 6.0'						S3 Recovery: 1.5'/2.0' PID: 295	
-5.0		S3										
											5.5'-6.0' SB67-3 SVOA,Pest/PCB,TAL,CN,VOA	
		S4									S4 Recovery: 1.0'/2.0' PID: >500 saturated	
					Some cinder ash @ 7.0', saturated @ 7.0'							
					TOTAL DEPTH = 8.0 FEET							
-10.0												

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 09/29/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB68		
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				● RQD ● 20 40 60 80								
				■ % Recovery ■ 20 40 60 80								
				▲ "N" value ▲ 20 40 60 80								
0.0							0.0'-0.7' Gravel Fill			S1 Recovery: 1.8'/2.0' PID: 5	0.0	
	S1						0.7'-2.0' SILTY SAND: brown, loose, brick fragments			0.0'-1.0' SB68-1 SVOA,Pest/PCB,TAL,CN		
	S2						2.0'-8.0' SILTY SAND: some cinders and gravel, and glass			1.5'-2.0' SB68-2 VOA S2 Recovery: 1.5'/2.0' PID: 42		
-5.0	S3									S3 Recovery: 1.0'/2.0' PID: 25	-5.0	
	S4									S4 Recovery: 1.5'/2.0' PID: 115 6.5'-7.5' SB68-3 SVOA,Pest/PCB,TAL,CN,VOA		
	S5						Wet @ 7.5'			S5 Recovery: 2.0'/2.0' PID: >300		
-10.0							8.0'-10.0' CLAYEY SILT: black, olive green mottles, saturated				-10.0	
							TOTAL DEPTH = 10.0 FEET					

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 10.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/29/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB69		
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input checked="" type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA		ELEVATION (ft)
0.0				0.0'-2.0' SILTY SAND: brown, loose, gravel, brick at 2.0'						S1 Recovery: 1.0'/2.0' PID: 0.0 0.5'-1.0' SB69-1 SVOA, Pest/PCB, TAL, CN	0.0	
		S1								1.5'-2.0' SB69-2 VOA		
				2.0'-8.0' As above, shell fragments, some cinders, turning more black, orange brown						S2 Recovery: PID:		
		S2										
				4.0'-6.0' Shell fragments, some cinders						S3 Recovery: 0.5'/2.0' PID: 0.0		
-5.0		S3									-5.0	
										S4 Recovery: 1.0'/2.0' PID: 0.0 6.0'-7.0' SB69-3 SVOA, Pest/PCB, TAL, CN, VOA		
		S4										
				Wet @ 7.5'								
				TOTAL DEPTH = 8.0 FEET								
-10.0											-10.0	

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
		REVIEWED BY: E.SCIULLI		COMPLETE: 09/29/98	
		Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 09/30/98			BOREHOLE No: 96C123_SB71		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	<div style="display: flex; justify-content: space-between; font-size: 0.8em;"> ◆ % Core Recovery ◆ ● RQD ● ■ % Recovery ■ ▲ "N" value ▲ </div> <div style="display: flex; justify-content: space-between; font-size: 0.7em;"> 20 40 60 80 20 40 60 80 20 40 60 80 20 40 60 80 </div>				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-2.0' SILTY SAND: brown and black, moist, with cinders			S1 Recovery: 2.0'/2.0' PID/FID: 666/0.1 0.0'-1.0' SB71-1 SVOA,Pest/PCB,TAL,CN	0.0			
	S1							1.0'-1.5' SB71-2 VOA				
					2.0'-2.5' GRAVELLY SANDY SILT: red, moist			S2 Recovery: 1.5'/2.0' PID/FID: 902/0.0				
	S2				2.5'-3.0' SILTY SAND: brown							
					3.0'-4.0' SAND and CINDERS: black							
					4.0'-6.0' SILTY SAND: brown, moist; ash and cinders @ 4.5'			S3 Recovery: 1.5'/2.0' PID/FID: 306/0.0 4.0'-5.0' SB71-3 SVOA,Pest/PCB,TAL,CN,VOA				
-5.0	S3								-5.0			
					6.0'-10.0' Ash and cinders			S4 Recovery: 1.0'/2.0' PID/FID: 114/0.0				
	S4											
								S5 Recovery: 2.0'/2.0' PID/FID: 350/0.0				
	S5											
					Silty clay @ 9.5'							
-10.0					10.0'-12.0' SILTY CLAY: light brown; gravelly sand @ 11.0'			S6 Recovery: 2.0'/2.0' PID/FID: 65/0.0	-10.0			
	S6											
					TOTAL DPTH = 12.0 FEET							

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 12.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 09/30/98			BOREHOLE No: 96C123_SB72		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				% Core Recovery							
				20 40 60 80							
				● RQD ●							
				20 40 60 80							
				% Recovery							
				20 40 60 80							
				▲ "N" value ▲							
				20 40 60 80							
0.0				0.0'-2.0' SAND: brown, pebbly, medium, damp, moist black sand, ash and cinders						S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB72-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1									
				2.0'-4.0' SAND: black, moist, ash, cinders and brick						1.0'-1.5' SB72-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2									
				4.0'-4.5' SAND: brown, moist						S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
				4.5'-5.0' Ash and cinders							
-5.0		S3		5.0'-6.0' SAND: black, with ash and cinders							-5.0
				6.0'-8.0' CLAYEY SILT: black, moist						S4 Recovery: 2.0'/2.0' PID/FID: 35/0.0	
		S4									
				8.0'-12.0' SAND: light brown, moist						S5 Recovery: 2.0'/2.0' PID/FID: 45.5/0.0	
		S5								9.0'-10.0' SB72-3 VOA,SVOA,Pest/PCB,TAL,CN	
-10.0		S6								S6 Recovery: 2.0'/2.0' PID: 30/0.0	-10.0
				TOTAL DEPTH = 12.0 FEET							

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 12.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON				START DATE: 09/30/98				BOREHOLE No: 96C123_SB73			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70's				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-0.4' ASPHALT						S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB73-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1		0.4'-2.0' SILTY SAND: dark gray, black, moist, w/ glass							
				2.0'-2.5' BRICK						1.5'-2.0' SB73-2 VOA	
		S2		2.5'-3.3' SAND: brown, moist, gravelly, medium						S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
				3.3'-4.0' SILTY SAND: black, moist, and brick							
				4.0'-8.2' SILTY SAND: dark brown, moist, with brick, cinder and ash						S3 Recovery: 2.0'/2.0' PID/FID: >2000/0.0	
-5.0		S3									-5.0
										S4 Recovery: 2.0'/2.0' PID/FID: >2000/35.2	
		S4								7.0'-8.0' SB73-3 VOA,SVOA,Pest/PCB,TAL,CN	
				Wet @ 8.2'						S5 Recovery: 2.0'/2.0' PID/FID: >2000/0.0	
		S5		8.2'-12.0' MEADOW MAT, gray, medium sand							
-10.0		S6								S6 Recovery: 2.0'/2.0' PID/FID: --	-10.0
				TOTAL DEPTH = 12.0 FEET							

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 12.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 09/30/98			BOREHOLE No: 96C123_SB74		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-2.0' SILTY SAND: light brown to dark brown, damp; brick at 1.2'-1.5'			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB74-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1										
								2.0'-8.0' SAND: black brown, moist			1.0'-1.5' SB74-2 VOA S2 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
		S2										
								4.5' ash and cinders and brick			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
-5.0		S3										-5.0
											S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 6.0'-7.0' SB74-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB75		
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				▲ "N" value ▲								
0.0								0.0'-2.0' SILTY SAND: brown, loose, some gravel concrete @ 1.0'			S1 Recovery: 1.0'/2.0' PID: 0.0 0.5'-1.0' SB75-1 SVOA, Pest/PCB, TAL, CN	0.0
		S1										
								2.0'-4.0' As above, grading to more silt, some shale fragments, some ash, cinder			1.5'-2.0' SB75-2 VOA S2 Recovery: 1.5'/2.0' PID: 0.0	
		S2										
								4.0'-6.0' As above, black felt or tar paper @ 5.0', shale fragments, ash and cinder			S3 Recovery: 2.0'/2.0' PID: 0.0	
-5.0		S3										
								6.0'-8.0' Grading to silt @ 7.0', wet, olive green mottles			S4 Recovery: 2.0'/2.0' PID: 0.0 6.5'-7.0' SB75-3 VOA, SVOA, Pest/PCB, TAL, CN	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/29/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/01/98			BOREHOLE No: 96C123_SB76		
LOCATION: CAMDEN, NJ			WEATHER: COOL, PARTLY CLOUDY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT (N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				▲ "N" value ▲								
0.0								0.0'-0.5' SAND: brown, moist, gravelly			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB76-1 SVOA, Pest/PCB, TAL, CN	0.0
		S1						0.5'-2.0' SAND: gray, ash and cinders			1.0'-1.5' SB76-2 VOA	
								2.0'-4.0' Ash and cinders, moist			S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2										
								4.0'-4.5' SAND: brown, ash and cinders			S3 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB76-3 VOA, SVOA, Pest/PCB, TAL, CN	
-5.0		S3						4.5'-6.0' SANDY SILTY CLAY: wet				-5.0
								6.0'-8.0' SILTY SAND: dark gray, wet			S4 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/01/98
		Fig. No:	Page 1 of 1

MARTIN AARON				START DATE: 10/01/98				BOREHOLE No: 96C123_SB77			
LOCATION: CAMDEN, NJ				WEATHER: PARTLY CLOUDY, COOL				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	<div style="display: flex; justify-content: space-between;"> <div> ◆ % Core Recovery ◆ 20 40 60 80 </div> <div> ● RQD ● 20 40 60 80 </div> <div> ■ % Recovery ■ 20 40 60 80 </div> <div> ▲ "N" value ▲ 20 40 60 80 </div> </div>				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-1.5' SAND: light gray, gravelly, moist			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB77-1 SVOA,Pest/PCB,TAL,CN	0.0			
		S1			1.5'-4.0' Ash and cinders			1.0'-1.5' SB77-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0				
		S2										
		S3			4.0'-6.0' SILTY GRAVELLY SAND: brown, moist			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/3.1	5.0			
5.0		S3			6.0'-8.0' SILTY SAND: black, moist, with cinders			S4 Recovery: 1.5'/2.0' PID/FID: 0.0/7.4 6.0'-7.0' SB77-3 VOA,SVOA,Pest/PCB,TAL,CN				
		S4			7.2'-7.5' Brick and wood							
					TOTAL DEPTH = 8.0 FEET							
10.0									10.0			

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/01/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 09/29/98			BOREHOLE No: 96C123_SB78		
LOCATION: CAMDEN, NJ			WEATHER: CLEAR, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-2.0' SILTY SAND: brown, moist, some gravel and cinders			S1 Recovery: 1.5'/2.0' PID: 10.0 0.0'-1.0' SB78-1 SVOA, Pest/PCB, TAL, CN 1.0'-1.5' SB78-2 VOA	0.0
		S1										
								2.0'-3.0' SILTY SAND: brown, moist, some gravel			S2 Recovery: 2.0'/2.0' PID: 0.0	
		S2										
								3.0'-3.5' SILTY CLAY: brown & gray, moist				
								3.5'-6.0' moist brown silty sand, some cinders and coal			S3 Recovery: 1.0'/2.0' PID: 0.0	
-5.0		S3										-5.0
								6.0'-8.0' SILTY SAND: brown, moist			S4 Recovery: 1.0'/2.0' PID: 50.0 6.5'-7.5' SB78-3 VOA, SVOA, Pest/PCB, TAL, CN	
		S4										
								Wet @ 8.0'				
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/29/98
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MARTIN AARON			START DATE: 09/30/98			BOREHOLE No: 96C123_SB79		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70's			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				● RQD ● 20 40 60 80								
				■ % Recovery ■ 20 40 60 80								
				▲ "N" value ▲ 20 40 60 80								
0.0						0.0'-0.5' SILTY SAND: brown, moist			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/51.1	0.0		
		S1				0.5'-1.5' Concrete and brick			0.0'-1.0' SB79-1 SVOA,Pest/PCB,TAL,CN (MS/MSD)			
						1.5'-4.0' SILTY CLAY: yellow brown, moist			1.5'-2.0' SB79-2 VOA (MS/MSD) S2 Recovery: 1.5'/2.0' PID/FID: 0.0/51.1			
		S2										
-5.0						4.0'-6.0' SILTY SAND: gray and brown, moist, some cinders			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	-5.0		
		S3										
						6.0'-8.0' SILTY SAND: gray and dark brown, moist, medium, with brick and rock fragments			S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 6.5'-7.5' SB79-3 VOA,SVOA,Pest/PCB,TAL,CN 6.5'-7.5' SB79-4 dup. VOA,SVOA,Pest/PCB,TAL,CN			
		S4										
						8.0'-10.0' SAND: dark gray, moist, and meadow mat @ 8.5'			S5 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0			
		S5										
-10.0						10.0'-12.0' SAND: light gray, wet, medium			S6 Recovery: 2.0'/2.0' PID: 0.0/0.0	-10.0		
		S6										
						TOTAL DEPTH = 12.0 FEET						

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 12.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 09/30/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/01/98			BOREHOLE No: 96C123_SB80		
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, COOL			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-0.5' CONCRETE			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.5'-1.0' SB80-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1						0.5'-2.0' SILTY SAND: brown, moist			1.0'-1.5' SB80-2 VOA	
								2.0'-4.0' No recovery, rock in end of sampler			S2 Recovery: 0.0'/2.0' PID/FID: 0.0/0.0	
		S2										
								4.0'-5.0' SILTY SAND: brown, gravelly, moist			S3 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 4.5'-5.5' SB80-3 VOA,SVOA,Pest/PCB,TAL,CN	
-5.0		S3						5.0'-6.0' SILTY SAND: brown, moist				-5.0
								6.0'-8.0' SILTY SAND: light brown			S4 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S4						Water @ 6.5'				
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/01/98
		Fig. No:	Page 1 of 1

MARTIN AARON				START DATE: 10/01/98				BOREHOLE No: 96C123_SB81			
LOCATION: CAMDEN, NJ				WEATHER: PARTLY CLOUDY, COOL				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input checked="" type="checkbox"/> Drilled Casing <input checked="" type="checkbox"/> Hollow Stem <input checked="" type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-0.5' CONCRETE			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.8'-1.3' SB81-1 SVOA, Pest/PCB, TAL, CN	0.0
		S1						0.5'-0.8' BRICK			1.3'-1.5' SB81-2 VOA	
								0.8'-2.0' SAND: brown, moist, pebbly, some cinders			S2 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
		S2						2.0'-6.0' SILTY SAND: brown, moist, with pebbles, some cinders and brick			S3 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
-5.0		S3									5.0'-6.0' SB81-3 SVOA, VOA, Pest/PCB, TAL, CN	-5.0
								6.0'-8.0' SAND: brown to greenish brown, medium to fine, green mottling in last 6 in.; wet @ 6.0'			S4 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/01/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/01/98			BOREHOLE No: 96C123_SB82		
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, COOL			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				% Core Recovery							
				20 40 60 80 ● RQD ● 20 40 60 80							
				% Recovery							
				20 40 60 80 ▲ "N" value ▲ 20 40 60 80							
0.0				0.0'-0.5' CONCRETE						S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.5'-1.0' SB82-1 SVOA, Pest/PCB, TAL, CN	0.0
		S1		0.5'-1.0' SAND and CINDERS: brown, moist							
				1.0'-4.0' SAND: brown, moist, medium						1.0'-1.5' SB82-2 VOA	
		S2								S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
				4.0'-6.0' SILTY SAND: brown, moist,						S3 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB82-3 VOA, SVOA, Pest/PCB, TAL, CN	
5.0		S3		Water @ 5.0'							5.0
				6.0'-8.0' SAND: gray, saturated, medium						S4 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S4									
				TOTAL DEPTH = 8.0 FEET							
10.0											10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/01/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/05/98			BOREHOLE No: 96C123_SB83		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-0.5' Concrete			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.5'-1.5' SB83-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1						0.5'-1.0' CINDERS: black, moist, and sand				
								1.0'-7.0' SAND: brown, wet, fine to medium from wet to saturated w/ depth			1.5'-2.0' SB83-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2										
											S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB83-3 VOA,SVOA,Pest/PCB,TAL,CN	
-5.0		S3						Water @ 5.0'				-5.0
											S4 Recovery: 2.0'/2.0' PID/FID: 0.0/1.0	
		S4						7.0'-8.0' SILTY SAND: gray, saturated, fine to medium				
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI		COMPLETE: 10/05/98	
		Fig. No:		Page 1 of 1	

MARTIN AARON				START DATE: 10/05/98				BOREHOLE No: 96C123_SB84			
LOCATION: CAMDEN, NJ				WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				▲ "N" value ▲								
0.0								0.0'-0.5' Concrete			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.5'-1.5' SB84-1 SVOA, Pest/PCB, TAL,CN 1.5'-2.0' SB84-2 VOA	0.0
		S1						0.5'-9.0' SAND: brown, wet, fine to medium			S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2										
5.0		S3						Water @ 5.5'			S3 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 4.5'-5.5' SB84-3 VOA,SVOA,Pest/PCB,TAL,CN	5.0
		S4									S4 Recovery: 1.0'/2.0' PID/FID: 0.0/1.0	
		S5						9.0'-9.5' SILTY SAND: gray, saturated, fine to medium 9.5'-10.5' SILTY CLAY: dark gray, wet			S5 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
10.0		S6						10.5'-12.0' SAND: gray, wet, medium, with pebbles			S6 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	10.0
								TOTAL DEPTH = 12.0 FEET				

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 12.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/05/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON				START DATE: 10/05/98				BOREHOLE No: 96C123_SB85			
LOCATION: CAMDEN, NJ				WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
0.0								0.0'-1.0' SANDY GRAVEL: moist			S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB85-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1						1.0'-2.0' SAND: brown, moist, fine to medium			1.0'-1.5' SB85-2 VOA	
								2.0'-2.5' CINDERS: black, moist			S2 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
		S2						2.5'-4.0' BRICK: moist, ash and cinders				
								4.0'-4.5' SILTY SAND: black, moist			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
-5.0		S3						4.5'-7.5' SAND: brown, moist, fine to medium				-5.0
								7.5'-8.0' SILTY SAND: dark brown, fine			S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 6.5'-7.5' SB85-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S4						8.0'-12.0' SAND: very light brown, moist to wet			S5 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
		S5										
-10.0		S6						12.0'-16.0' GRAVELLY SAND: brown, saturated, coarse			S6 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	-10.0
											S7 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
		S7										
		S8									S8 Recovery: 1.5'/2.0' PID/FID: 0.0	

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 16.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/05/98	
				Fig. No:		Page 1 of 2	

MARTIN AARON	START DATE: 10/05/98	BOREHOLE No: 96C123_SB85
LOCATION: CAMDEN, NJ	WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.	Project No: 96-1322-C123
DRILLED W/GEOPROBE	DRILLED BY: STEVE MOYLAN, JCA	ELEVATION: 0.000 (ft)
SAMPLE TYPE <input type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core		

[illegible]

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Ebensburg, Pennsylvania

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REVIEWED BY: E.SCIULLI

Fig. No:

COMPLETION DEPTH: 16.0 ft

COMPLETE: 10/05/98

MARTIN AARON			START DATE: 10/01/98			BOREHOLE No: 96C123_SB86			
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, COOL			Project No: 96-1322-C123			
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)			
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core						
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION		USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-1.0' Ash and cinders: dry, black sand, slag				S1 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB86-1 SVOA,Pest/PCB,TAL,CN	0.0
	S1			1.0'-4.0' SAND: brown, moist, with cinder and slag				1.0'-1.5' SB86-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
	S2								
-5.0	S3			4.0'-6.0' SAND: black, damp, and cinders and slag				S3 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	-5.0
	S4			6.0'-8.0' SILTY SAND: gray, moist to saturated, cinder Water @ 6.5'				S4 Recovery: 1.5'/2.0' PID/FID: 0.0/4.2 6.5'-7.5' SB86-3 VOA,SVOA,Pest/PCB,TAL,CN	
				TOTAL DEPTH = 8.0 FEET					
-10.0									-10.0

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Fig. No:

COMPLETION DEPTH: 8.0 ft

COMPLETE: 10/01/98

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MARTIN AARON			START DATE: 10/01/98			BOREHOLE No: 96C123_SB87		
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, COOL			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	<div style="display: flex; justify-content: space-between;"> <div>◆ % Core Recovery ◆</div> <div>20 40 60 80</div> </div> <div style="display: flex; justify-content: space-between;"> <div>● RQD ●</div> <div>20 40 60 80</div> </div> <div style="display: flex; justify-content: space-between;"> <div>■ % Recovery ■</div> <div>20 40 60 80</div> </div> <div style="display: flex; justify-content: space-between;"> <div>▲ "N" value ▲</div> <div>20 40 60 80</div> </div>				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-0.5' CONCRETE			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/38.3 0.5'-1.0' SB87-1 SVOA,Pest/PCB,TAL,CN	0.0			
		S1			0.5'-0.8' SAND: black, dry, and cinders							
					0.8'-1.5' SAND: light brown, damp, fine to medium							
					1.5'-4.0' SAND: black, damp, and cinders			1.5'-2.0' SB87-2 VOA S2 Recovery: 2.0'/2.0' PID/FID: 0.0/1.0				
		S2										
					4.0'-6.0' SILTY SAND: dark gray, moist, and ash			S3 Recovery: 1.0'/2.0' PID/FID: 0.0/36.2 4.0'-5.0' SB87-3 VOA,SVOA,Pest/PCB,TAL,CN	5.0			
-5.0		S3										
					6.0'-8.0' SAND: brown, wet, medium			S4 Recovery: 1.0'/2.0' PID/FID: 0.0/3.6				
		S4										
					Water @ 8.0'							
					TOTAL DEPTH = 8.0 FEET							
-10.0									-10.0			

L. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL	
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI	
		COMPLETION DEPTH: 8.0 ft	
		COMPLETE: 10/01/98	
		Fig. No:	
		Page 1 of 1	

MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB88			
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123			
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)			
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core						
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION		USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-0.5' CONCRETE				S1 Recovery: 2.0'/2.0' PID/FID: 1200/1036	0.0
		S1		0.5'-2.0' SILTY SAND: brown and black, and cinders				0.5'-1.0' SB88-1 SVOA,Pest/PCB,TAL,CN	
				2.0'-7.0' CINDERS: gray,moist,black silty sand, increased moisture w/ depth				1.0'-1.5' SB88-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 395/60.9	
		S2							
-5.0								S3 Recovery: 1.5'/2.0' PID/FID: 284/90.8	-5.0
		S3							
				7.0'-8.0' SILTY CLAY: gray, with cinders Water @ 7.3'				S4 Recovery: 1.5'/2.0' PID/FID: 1665/13.9 6.0'-7.0' SB88-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S4							
				TOTAL DEPTH = 8.0 FEET					
-10.0									-10.0

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Fig. No:

COMPLETION DEPTH: 8.0 ft

COMPLETE: 10/02/98

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MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB89			
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123			
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)			
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core						
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION		USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
			◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80						
0.0				0.0'-0.5' CONCRETE				S1 Recovery: 2.0'/2.0' PID/FID: 204/0.0	0.0
	S1			0.5'-2.0' SAND: brown and dark gray, moist, fine to medium, with cinders				0.5'-1.0' SB89-1 SVOA,Pest/PCB,TAL,CN	
	S2			2.0'-2.5' SILTY SAND: dark gray and brown, moist				1.5'-2.0' SB89-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 12.3/0.3	
	S3			2.5'-6.0' CINDERS: rust-colored, moist				S3 Recovery: 1.0'/2.0' PID/FID: 1104/0.3 4.0'-5.0' SB89-3 VOA,SVOA,Pest/PCB,TAL,CN	5.0
5.0	S4			6.0'-8.0' SILTY SAND: brown, moist, and cinders, water @ 7.0'				S4 Recovery: 1.0'/2.0' PID/FID: 0/10.0	
10.0				TOTAL DEPTH = 8.0 FEET					10.0
L. ROBERT KIMBALL & ASSOCIATES				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft			
Ebensburg, Pennsylvania				REVIEWED BY: E.SCIULLI		COMPLETE: 10/02/98			
				Fig. No:		Page 1 of 1			

MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB90		
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input checked="" type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-0.5' CONCRETE						S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.5'-1.0' SB90-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1			0.5'-4.0' SILTY SAND: dark gray and brown, moist, and cinders						1.0'-1.5' SB90-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2										
		S3			4.0'-7.0' No recovery						S3 Recovery: 0.0'/2.0' PID/FID: --/--	5.0
5.0		S4			7.0'-7.7' SILTY CLAY: gray, moist, and cinders						S4 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0	
					7.7'-8.0' SILTY SAND: brown, saturated, some cinders, water @ 7.7'						7.0'-7.5' SB90-3 VOA,SVOA,Pest/PCB,TAL,CN	
					TOTAL DEPTH = 8.0 FEET							
10.0												10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/02/98
		Fig. No:	Page 1 of 1

L. ROBERT KIMBALL & ASSOCIATES
Ebensburg, Pennsylvania

COMPLETION DEPTH: 8.0 ft
COMPLETE: 10/06/98

MARTIN AARON			START DATE: 10/06/98			BOREHOLE No: 96C123_SB92		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, COOL, DRY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: WELLS REEVES, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					
			◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80					
DEPTH (ft)			SOIL DESCRIPTION			ELEVATION (ft)		
SAMPLE TYPE			USC			SOIL SYMBOL		
SAMPLE NO			FIELD DATA					
SPT(N)								
0.0			0.0'-1.5' SAND: brown, dry, with cinders and brick			S1 Recovery: 2.0'/2.0' PID/FID: 0/0 0.0'-1.0' SB92-1 SVOA,Pest/PCB,TAL,CN		
S1			1.5'-2.5' SAND: reddish brown, damp, and cinders			1.5'-2.0' SB92-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0/0		
S2			2.5'-6.0' ASH and CINDERS: black and gray moist			S3 Recovery: 1.0'/2.0' PID/FID: 0/0		
5.0			S3			S4 Recovery: 2.0'/2.0' PID/FID: 909/0 6.0'-7.0' SB92-3 VOA,SVOA,Pest/PCB,TAL,CN		
S4			6.0'-8.0' SAND: brown, moist to wet, cinders and ash, water @ 7.5'					
TOTAL DEPTH = 8.0 FEET								
10.0								
L. ROBERT KIMBALL & ASSOCIATES			LOGGED BY: M.EBEL			COMPLETION DEPTH: 8.0 ft		
Ebensburg, Pennsylvania			REVIEWED BY: E.SCIULLI			COMPLETE: 10/06/98		
			Fig. No:			Page 1 of 1		

MARTIN AARON				START DATE: 10/06/98				BOREHOLE No: 96C123_SB93			
LOCATION: CAMDEN, NJ				WEATHER: SUNNY, COOL, DRY				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: WELLS REEVES, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-8.0' SAND: rust-colored, moist, ash and cinders			S1 Recovery: 1.5'/2.0' PID/FID: 0/0 0.0'-1.0' SB93-1 SVOA,Pest/PCB,TAL,CN 1.0'-1.5' SB93-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0/0 S3 Recovery: 1.5'/2.0' PID/FID: 74.9/0.3 4.0'-5.0' SB93-3 VOA,SVOA,Pest/PCB,TAL,CN S4 Recovery: 1.5'/2.0' PID/FID: 22.1/0 S5 Recovery: 2.0'/2.0' PID/FID: 7.6/58.8 S6 Recovery: 2.0'/2.0' PID/FID: 8.0/20.5	0.0
	S1											
	S2											
	S3											5.0
-5.0												
	S4											
								Water @ 7.5'				
								8.0'-8.5' CINDERS: black, saturated				
								8.5'-10.0' SANDY SILT: black, and silty clayey sand				
	S5											
								10.0'-12.0' SILTY CLAY: black and dark gray				10.0
-10.0												
	S6											
								TOTAL DEPTH = 12.0 FEET				

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 12.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/06/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/06/98			BOREHOLE No: 96C123_SB94		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, COOL, DRY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: WELLS REEVES, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				▲ "N" value ▲								
0.0								0.0'-0.5' CONCRETE			S1 Recovery: 1.5'/2.0' PID/FID: 0/0 0.5'-1.0' SB94-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1						0.5'-1.0' SAND: black and gray, dry, with cinders			1.0'-1.5' SB94-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0/0	
		S2						1.0'-6.5' SAND: red, and cinders, moist			S3 Recovery: 1.5'/2.0' PID/FID: 0/0 4.5'-5.5' SB94-3 VOA,SVOA,Pest/PCB,TAL,CN	5.0
-5.0		S3									S4 Recovery: 1.5'/2.0' PID/FID: 0/0	
		S4						6.5'-8.0' CINDERS: black, wet Water @ 6.5'				
								TOTAL DEPTH = 8.0 FEET				
-10.0												10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/06/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/06/98			BOREHOLE No: 96C123_SB95		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, COOL, DRY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: WELLS REEVES, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	<div style="display: flex; justify-content: space-between;"> <div> ◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80 </div> <div style="text-align: center; flex-grow: 1;"> <h2 style="margin: 0;">SOIL DESCRIPTION</h2> </div> <div> USC SOIL SYMBOL </div> </div>				FIELD DATA	ELEVATION (ft)		
				0.0				0.0'-0.5' SAND: brown and gray, damp, cinders, gravel and slag			0.0
					S1			0.5'-2.0' GRAVELLY SAND: light brown and gray, damp, and cinders		S1 Recovery: 1.5'/2.0' PID/FID: 0/0 0.0'-1.0' SB95-1 SVOA, Pest/PCB, TAL, CN MS/MSD	
								2.0'-3.0' SAND: red, damp, medium, and cinders		1.0'-1.5' SB95-2 VOA MS/MSD S2 Recovery: 1.5'/2.0' PID/FID: 0/0	
					S2			3.0'-4.5' CINDERS: black, moist			
-5.0				4.5'-6.0' SAND and CINDERS: red, moist	S3 Recovery: 1.5'/2.0' PID/FID: 0/0 4.5'-5.5' SB95-3 VOA, SVOA, Pest/PCB, TAL, CN 4.5'-5.5' SB95-4 dup. VOA, SVOA, Pest/PCB, TAL, CN	-5.0					
	S3			6.0'-7.0' CINDERS: black, saturated							
				Water @ 6.5'	S4 Recovery: 1.5'/2.0' PID/FID: 0/0						
	S4			7.0'-8.0' SILTY CLAY: black							
				TOTAL DEPTH = 8.0 FEET							
-10.0						-10.0					

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/06/98
		Fig. No:	Page 1 of 1

MARTIN AARON				START DATE: 10/02/98				BOREHOLE No: 96C123_SB96				
LOCATION: CAMDEN, NJ				WEATHER: COOL, SUNNY, WINDY				Project No: 96-1322-C123				
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)				
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core												
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
▲ "N" value ▲												
20	40	60	80									
0.0								0.0'-0.5' CONCRETE			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	0.0
	S1							0.5'-1.0' SANDY FILL: dark brown, with cinders and boulders			0.5'-1.0' SB96-1 SVOA, Pest/PCB, TAL, CN MS/MSD	
								1.0'-1.5' Concrete Ag./gray sand, black sand with cinders and brick pieces			1.0'-1.5' SB96-2 VOA MS/MSD	
								1.5'-2.5' SANDY FILL: dark brown, with cinders			S2 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
	S2							2.5'-2.8' Concrete pieces				
								2.8'-4.0' SAND: dark brown to brown, medium to coarse, with cinders and pebbles, last 3 in. sand only				
-5.0	S3							4.0'-8.0' SAND: dark brown/black, and cinders			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB96-3 VOA, SVOA, Pest/PCB, TAL, CN	-5.0
	S4							Water @ 7.0'			S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
								TOTAL DEPTH = 8.0 FEET				

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Fig. No:

COMPLETION DEPTH: 8.0 ft

COMPLETE: 10/02/98

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MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB98		
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0						0.0'-0.5' GRAVEL: dark brown, dry, sand and cinders			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB98-1 SVOA,Pest/PCB,TAL,CN	0.0		
		S1				0.5'-1.0' CONCRETE: broken, and AG						
						1.0'-4.0' SAND: dark brown, and cinders and ashes, medium brown sand mixed in with orange mottling			1.0'-1.5' SB98-2 VOA S2 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0			
		S2										
						4.0'-5.0' SILTY SAND: brown, moist, fine			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB98-3 VOA,SVOA,Pest/PCB,TAL,CN			
-5.0		S3				5.0'-7.5' CLAYEY SILT: black, cinders, ash from moist to wet w/ depth				5.0		
						cinders, ash			S4 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0			
		S4				water @ 7.0'						
						TOTAL DEPTH = 8.0 FEET						
-10.0										-10.0		

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/02/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB99						
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123						
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)						
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core									
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-6.0' SAND: medium brown with medium to large pebbles, cinders, brick pieces, metallic slag, light brown near bottom			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB99-1 SVOA,Pest/PCB,TAL,CN 1.0'-1.5' SB99-2 VOA S2 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 7.0'-7.5' SB99-3 VOA,SVOA,Pest/PCB,TAL,CN	0.0
5.0								6.0'-8.0' SAND: dark brown to black, coarse Wet @ 7.5', cinders				5.0
10.0								TOTAL DEPTH = 8.0 FEET				10.0

L. ROBERT KIMBALL & ASSOCIATES
Ebensburg, Pennsylvania

LOGGED BY: M.EBEL
REVIEWED BY: E.SCIULLI
Fig. No:

COMPLETION DEPTH: 8.0 ft
COMPLETE: 10/02/98

MARTIN AARON			START DATE: 10/05/98			BOREHOLE No: 96C123_SB105		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-0.5' Concrete			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	0.0
		S1						0.5'-4.0' SAND: black, moist, gravelly, and cinders			0.5'-1.5' SB105-1 SVOA, Pest/PCB, TAL, CN	
		S2									1.5'-2.0' SB105-2 VOA S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
-5.0		S3						4.0'-6.5' CINDERS: black, moist			S3 Recovery: 1.0'/2.0' PID/FID: 0.0/0.0 4.0'-5.0' SB105-3 VOA, SVOA, Pest/PCB, TAL, CN	-5.0
		S4						6.5'-8.0' ASH: gray, saturated Water @ 6.5'			S4 Recovery: 1.0'/2.0' PID/FID: 0.0/1.0	
								TOTAL DEPTH = 8.0 FEET				-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/05/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/02/98			BOREHOLE No: 96C123_SB107		
LOCATION: CAMDEN, NJ			WEATHER: COOL, SUNNY, WINDY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input checked="" type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA		ELEVATION (ft)
0.0				0.0'-0.5' Asphalt and concrete 0.5'-2.0' Anthracite, ashes, cinders						S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.5'-1.0' SB107-1 SVOA,Pest/PCB,TAL,CN	0.0	
		S1								1.0'-1.5' SB107-2 VOA		
				2.0'-3.0' Anthracite, ashes, cinders, coarse brown sand						S2 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0		
		S2										
				3.0'-8.0' Cinders, black ash w/gray mottling						S3 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0		
-5.0		S3								5.0'-6.0' SB107-3 VOA,SVOA,Pest/PCB,TAL,CN	-5.0	
										S4 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0		
		S4										
				Wet @ 7.5'								
				TOTAL DEPTH = 8.0 FEET								
-10.0											-10.0	

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/02/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/05/98			BOREHOLE No: 96C123_SB108			
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.			Project No: 96-1322-C123			
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)			
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core						
DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION		USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-1.5' SAND: black, moist, medium, and cinders				S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB108-1 SVOA,Pest/PCB,TAL,CN	0.0
	S1								
				1.5'-2.0' SAND: rust-colored, moist, medium, with cinders or slag				1.5'-2.0' SB108-2 VOA	
	S2			2.0'-4.5' CINDERS: black and gray, moist, and ash				S2 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
				4.5'-6.0' SAND: light brown, wet, medium, with brick and rock fragments				S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
-5.0	S3								
				6.0'-6.5' SAND: brown, wet, medium, to saturated silty				S4 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
	S4			Water @ 6.3'					
				6.5'-9.5' MEADOW MAT: and black silty clay with organic material					
	S5							S5 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
				9.5'-10.0' SILTY CLAYEY SAND: black, wet, medium				S6 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0	
-10.0	S6			10.0'-12.0' SAND: light gray, medium to coarse, saturated					-10.0
				TOTAL DEPTH = 12.0 FEET					
I. ROBERT KIMBALL & ASSOCIATES						LOGGED BY: M.EBEL		COMPLETION DEPTH: 12.0 ft	
Ebensburg, Pennsylvania						REVIEWED BY: E.SCIULLI		COMPLETE: 10/05/98	
						Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/05/98			BOREHOLE No: 96C123_SB109		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, SLIGHTLY BREEZY, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-1.5' SILTY SAND: rust-colored, moist, with fine gravel			S1 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 0.0'-1.0' SB109-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1						1.5'-2.0' SILTY SAND: black, moist, fine, with cinders			1.5'-2.0' SB109-2 VOA	
								2.0'-2.5' CINDERS: black			S2 Recovery: 1.5'/2.0' PID/FID: 0.0/0.0	
		S2						2.5'-4.0' SAND: light brown, wet, medium to coarse				
								4.0'-5.5' SAND: light brown, wet, fine to medium			S3 Recovery: 2.0'/2.0' PID/FID: 0.0/0.0 4.5'-5.5' SB109-3 VOA,SVOA,Pest/PCB,TAL,CN	5.0
-5.0		S3						5.5'-6.0' SAND: gray, fine to medium with cinders, water @ 5.5'(saturated)				
								6.0'-6.3' MEADOW MAT			S4 Recovery: 2.0'/2.0' PID/FID: 0.0/108	
		S4						6.3'-7.0' SAND: black, well sorted, wet medium				
								7.0'-8.0' SAND: brown and gray, medium to coarse, wet				
								TOTAL DEPTH = 8.0 FEET				
-10.0												10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/05/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/08/98			BOREHOLE No: 96C123_SB110		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, RAINY			Project No: 96-1322-C123		
DRILLED W/JACKHAMMER			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-4.0' SANDY CINDERS: dark brown and gray, wet			S1 Recovery: 0.7'/2.0' PID/FID: 0/10.5	0.0
		S1									0.0'-0.5' SB110-1 SVOA, Pest/PCB, TAL, CN	
											0.5'-1.0' SB110-2 VOA	
		S2									S2 Recovery: 0.0'/2.0'	
								4.0'-6.0' CINDERS: saturated, strong odor, black water			S3 Recovery: 0.3'/2.0' PID/FID: 79/127	
-5.0		S3										-5.0
								TOTAL DEPTH = 6.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL		COMPLETION DEPTH: 6.0 ft	
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI		COMPLETE: 10/08/98	
		Fig. No:		Page 1 of 1	

300220



MARTIN AARON			START DATE: 10/06/98			BOREHOLE No: 96C123_SB113		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, COOL, DRY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: WELLS REEVES, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				◆ % Core Recovery ◆							
				20	40	60	80				
				● RQD ●							
				■ % Recovery ■							
▲ "N" value ▲											
20	40	60	80								
0.0				0.0'-0.5' CONCRETE						S1 Recovery: 2.0'/2.0' PID/FID: 0/0	0.0
		S1		0.5'-1.0' SAND: brown, moist, medium to coarse						0.5'-1.5' SB113-1 SVOA,Pest/PCB,TAL,CN	
				1.0'-4.0' CINDERS: black and gray, moist						1.5'-2.0' SB113-2 VOA	
		S2								S2 Recovery: 2.0'/2.0' PID/FID: 0/9.7	
										3.0'-4.0' SB113-3 VOA,SVOA,Pest/PCB,TAL,CN	
				Water @ 4.0'						S3 Recovery: 2.0'/2.0' PID/FID: 231/207	
-5.0		S3		4.0'-7.5' CINDERS: black, saturated							-5.0
										S4 Recovery: 2.0'/2.0' PID/FID: 418/2230	
		S4									
				7.5'-8.0' SAND: greenish gray, saturated							
				TOTAL DEPTH = 8.0 FEET							
-10.0											-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/06/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/07/98			BOREHOLE No: 96C123_SB114		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-0.7' SILTY SAND: light brown, moist			S1 Recovery: 1.5'/2.0' PID/FID: 59.8/63.7 0.0'-0.5' SB114-1 SVOA,Pest/PCB,TAL,CN MS/MSD	0.0
		S1						0.7'-2.0' SILTY SAND: black and brown, moist, and cinders			1.0'-1.5' SB114-2 VOA MS/MSD	
								2.0'-3.0' SILTY SAND: black, wet, with gravel, brick			S2 Recovery: 1.5'/2.0' PID/FID: 71.4/130.1	
		S2						3.0'-4.0' CONCRETE				
								4.0'-5.0' DECOMPOSED CONCRETE			S3 Recovery: 2.0'/2.0' PID/FID: 12.0/2.2 4.0'-5.0' SB114-3 VOA,SVOA,Pest/PCB,TAL,CN 4.0'-5.0' SB114-4 dup. VOA,SVOA,Pest/PCB,TAL,CN	5.0
-5.0		S3						5.0'-6.0' SILTY SAND: black, with bright red, blue, and green on plastic melted to wood				
								6.0'-8.0' CINDERS: brown and gray, brick			S4 Recovery: 1.0'/2.0' PID/FID: 42.2/2.2	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
		Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/06/98			BOREHOLE No: 96C123_SB115		
LOCATION: CAMDEN, NJ			WEATHER: SUNNY, COOL, DRY			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: WELLS REEVES, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-2.0' SILTY GRAVELLY SAND: brown and black, damp, cinders, glass			S1 Recovery: 2.0'/2.0' PID/FID: 6.3/9.2 0.0'-0.5' SB115-1 SVOA,Pest/PCB,TAL,CN	0.0
		S1										
								2.0'-4.0' SILTY GRAVELLY SAND: gray and black, damp, cinders and brick			1.5'-2.0' SB115-2 VOA S2 Recovery: 2.0'/2.0' PID/FID: 48.8/35.5	
		S2										
								4.0'-5.0' SILTY SAND: gray, damp, gravel and cinder			S3 Recovery: 1.5'/2.0' PID/FID: 35.3/106	
		S3										
5.0								5.0'-6.0' WOOD				5.0
		S4						6.0'-7.0' SAND: gray, wet, fine to medium			S4 Recovery: 2.0'/2.0' PID/FID: 1842/162 6.5'-7.0' SB115-3 VOA,SVOA,Pest/PCB,TAL,CN	
		S5						7.0'-10.0' CINDERS and ASH: black and gray wet, water @ 7.5'			S5 Recovery: 1.0'/2.0' PID/FID: 187/160.1	
10.0								10.0'-12.0' MEADOW MAT: saturated, and black silty clay			S6 Recovery: 2.0'/2.0' PID/FID: 565/180	10.0
		S6										
								TOTAL DEPTH = 12.0 FEET				

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 12.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/06/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/07/98			BOREHOLE No: 96C123_VOA1		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core								

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-0.5' GRAVELLY SILTY SAND: light brown, moist			S1 Recovery: 2.0'/2.0' PID/FID: 141/18.0	0.0
				0.5'-3.5' GRAVELLY SILTY SAND: black, moist, and cinders			S2 Recovery: 1.5'/2.0' PID/FID: 810/16.0	
				3.5'-4.0' SAND: greenish brown, moist, fine to medium			S3 Recovery: 1.0'/2.0' PID/FID: 2000/16.5	
				4.0'-4.5' SAND: black, moist, and cinders			4.0'-4.5' VOA1-2	
				4.5'-5.0' SILTY CLAY: light gray, moist			VOA, % Solids	
-5.0				5.0'-8.0' CINDERS: black, saturated			S4 Recovery: 1.0'/2.0' PID/FID: 375/27.0	-5.0
				Water @ 6.0'				
				Wood caused refusal				
				TOTAL DEPTH = 8.0 FEET				
-10.0								-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 8.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/07/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/07/98			BOREHOLE No: 96C123_VOA2		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-0.5' GRAVELLY SILTY SAND: light brown, moist			S1 Recovery: 2.0'/2.0' PID/FID: 820/5.4 1.5'-2.0' VOA2-1 VOA, % Solids	0.0
		S1						0.5'-1.0' GRAVELLY SILTY SAND: black, moist				
								1.0'-2.0' GRAVEL: light gray, and sand				
								2.0'-6.0' SANDY CLAYEY SILT: black, moist, greenish sand @ 4.0'			S2 Recovery: 2.0'/2.0' PID/FID: <2000/77.0	
		S2										
											S3 Recovery: 2.0'/2.0' PID/FID: <2000/35.0	
5.0		S3										5.0
								6.0'-7.0' SANDY SILT: yellow, moist			S4 Recovery: 2.0'/2.0' PID/FID: <2000/407 6.5'-7.0' VOA2-2 VOA, % Solids	
		S4						7.0'-8.0' CINDERS: wet Water @ 7.0'				
								TOTAL DEPTH = 8.0 FEET				
10.0												10.0

L. ROBERT KIMBALL & ASSOCIATES			LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
Ebensburg, Pennsylvania			REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
			Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/07/98			BOREHOLE No: 96C123_PCB1		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-2.0' SAND: gray, moist, and rock fragments			S1 Recovery: 1.5'/2.0' PID/FID: 11.1/23.7 0.0'-0.5' PCB1-1 PCB	0.0
		S1										
								2.0'-4.0' SAND: black, moist, with cinders and gravel			S2 Recovery: 1.5'/2.0' PID/FID: 25.8/17.1	
		S2										
								4.0'-6.0' SILTY SAND: orange, moist			S3 Recovery: 2.0'/2.0' PID/FID: 56.0/37.2	
-5.0		S3									5.0'-6.0' PCB1-2 PCB	-5.0
								6.0'-8.0' CINDERS: wet, and sand, staining, bright yellow material, water @ 6.5'			S4 Recovery: 2.0'/2.0' PID/FID: 0/0	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
		Fig. No:		Page 1 of 1	

1

MARTIN AARON				START DATE: 10/07/98				BOREHOLE No: 96C123_PCB3			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA		ELEVATION (ft)
0.0				0.0'-2.0' SILTY SAND: moist, and cinders						S1 Recovery: 2.0'/2.0' PID/FID: 63/240 0.0'-0.5' PCB3-1 PCB	0.0	
		S1										
				2.0'-8.0' SAND: black, moist, and cinders						S2 Recovery: 2.0'/2.0' PID/FID: 3.2/32.1		
		S2										
-5.0										S3 Recovery: 2.0'/2.0' PID/FID: 0/15.7		
		S3								5.0'-6.0' PCB2-2 PCB	-5.0	
										S4 Recovery: 2.0'/2.0' PID/FID: 20/39.0		
		S4										
				Water @ 7.5'								
				TOTAL DEPTH = 8.0 FEET								
-10.0											-10.0	

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/07/98			BOREHOLE No: 96C123_PCB4		
LOCATION: CAMDEN, NJ			WEATHER: OVERCAST, 70 DEG.			Project No: 96-1322-C123		
DRILLED W/GEOPROBE			DRILLED BY: STEVE MOYLAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-1.5' SILTY SAND; brown, moist						S1 Recovery: 2.0'/2.0' PID/FID: 0/1.0 0.0'-0.5' PCB5-1 PCB	0.0
		S1			1.5'-2.0' CONCRETE							
					2.0'-3.0' SILTY SAND; black, and gravel						S2 Recovery: 2.0'/2.0' PID/FID: 84.3/30.0	
		S2			3.0'-4.0' Brick and cinders						2.0'-3.0' PCB4-2 PCB	
					TOTAL DEPTH = 4.0 FEET						Refusal @ 4.0'	
-5.0												-5.0
-10.0												-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania			LOGGED BY: M.EBEL		COMPLETION DEPTH: 4.0 ft	
			REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
			Fig. No:		Page 1 of 1	

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	% Core Recovery				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
0.0	S1			◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				0.0'-0.5' SILTY SAND: brown and gray, damp			S1 Recovery: 2.0'/2.0' PID/FID: 0/6.4 0.0'-0.5' PCB6-1 PCB	0.0
				0.5'-2.0' BRICK: black cinders and sand								
	S2							2.0'-4.0' BRICK: rock and black silty sand			S2 Recovery: 2.0'/2.0' PID/FID: 272/253 3.0'-4.0' PCB6-2 PCB Refusal @ 4.0'	
				TOTAL DEPTH = 4.0 FEET								
-5.0												-5.0
-10.0												-10.0

MARTIN AARON				START DATE: 10/07/98				BOREHOLE No: 96C123_PCB7			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE				<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core							

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	<div style="display: flex; justify-content: space-between;"> <div> ◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80 </div> <div style="text-align: center; flex-grow: 1;"> <h2 style="margin: 0;">SOIL DESCRIPTION</h2> </div> <div style="width: 10%;"> USC </div> </div>				SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-2.0' SILTY GRAVELLY SAND: brown and gray, dry to damp					S1 Recovery: 2.0'/2.0' PID/FID: 4.2/3.0 0.0'-0.5' PCB7-1 PCB	0.0
	S1			2.0'-3.0' SILTY SAND: black and brown, moist					S2 Recovery: 2.0'/2.0' PID/FID: 2.7/10.4	
	S2			3.0'-4.0' BRICK: and rock					2.0'-3.0' PCB7-2 PCB	
				TOTAL DEPTH = 4.0 FEET					Refusal @ 4.0'	
-5.0										-5.0
-10.0										-10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 4.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON				START DATE: 10/07/98				BOREHOLE No: 96C123_PCB8			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE				<input checked="" type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core							

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0								0.0'-2.0' SILTY SAND: brown and gray, dry to damp			S1 Recovery: 2.0'/2.0' PID/FID: 0/0.1 0.0'-0.5' PCB8-1 PCB	0.0
		S1										
								2.0'-4.0' BRICK and rock			S2 Recovery: 2.0'/2.0' PID/FID: 0/0	
		S2										
								4.0'-4.5' BRICK PIECES			S3 Recovery: 2.0'/2.0' PID/FID: 0/66.7	
								4.5'-8.0' CINDERS: black, and sand			5.0'-6.0' PCB8-2 PCB	5.0
-5.0		S3										
								wood @ 7.0'			S4 Recovery: 1.0'/2.0' PID/FID: 0/54.2	
		S4										
								TOTAL DEPTH = 8.0 FEET				
-10.0												10.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON				START DATE: 10/07/98				BOREHOLE No: 96C123_PCB10			
LOCATION: CAMDEN, NJ				WEATHER: OVERCAST, 70 DEG.				Project No: 96-1322-C123			
DRILLED W/GEOPROBE				DRILLED BY: STEVE MOYLAN, JCA				ELEVATION: 0.000 (ft)			
SAMPLE TYPE <input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core											

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA		ELEVATION (ft)
				◆ % Core Recovery ◆								
				● RQD ●								
				■ % Recovery ■								
				20	40	60	80					
				20	40	60	80					
				20	40	60	80					
				20	40	60	80					
				20	40	60	80					
0.0				0.0'-2.5' SILTY SAND: reddish brown, moist						S1 Recovery: 1.5'/2.0' PID/FID: 0/0	0.0	
	S1									0.0'-0.5' PCB10-1 PCB		
				2.5'-4.0' CINDERS and ash						S2 Recovery: 1.0'/2.0' PID/FID: 0/0		
	S2											
				4.0'-8.0' SAND: dark brown, wet, with cinders						S3 Recovery: 2.0'/2.0' PID/FID: 0/0		
	S3									5.0'-6.0' PCB10-2 PCB	5.0	
5.0										S4 Recovery: 1.0'/2.0' PID/FID: 0/0		
	S4											
				TOTAL DEPTH = 8.0 FEET								
10.0											10.0	

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania				LOGGED BY: M.EBEL		COMPLETION DEPTH: 8.0 ft	
				REVIEWED BY: E.SCIULLI		COMPLETE: 10/07/98	
				Fig. No:		Page 1 of 1	

MARTIN AARON			START DATE: 10/12/98			BOREHOLE No: 96C123_MW5S		
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, FAIR			Project No: 96-1322-C123		
DRILLED W/CME-55			DRILLED BY: JOHN URBAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-2.0' SAND: brown, coarse, with angular stone, black cinders and ash material - 2 in. on bottom, dry						S1 Blows: 24-40-100/0.5 Recovery: 1.0'/2.0' PID/FID: 119/4.8 Some noticeable odor	0.0
				2.0'-4.0' SAND: brown-black, coarse, with angular stone, cinders and ash, pieces of plastic bag in bottom						S2 Blows: 42-46-37-55 Recovery: 1.7'/2.0' PID/FID: 274/108 Strong product odor	
				4.0'-6.0' BRICK; black cinders						S3 Blows: 7-7-7-6 Recovery: 0.3'/2.0' PID/FID: 124/116	5.0
-5.0				6.0'-6.5' ASHES/CINDERS: black						S4 Blows: 7-7-33-14 Recovery: 1.6'/2.0' PID/FID: 261/530 Wet @ 7.2'	
				6.5'-7.0' SILTY SAND: brown							
				7.0'-8.0' ASHES/CINDERS: black, and wood							
				8.0'-10.0' CINDER/ASH: black, tan and gray mottling, wet						S5 Blows: 11-7-7-6 Recovery: 1.2'/2.0' PID/FID: 748/515 Product odor	
-10.0				10.0'-12.0' PEAT MATERIAL: may be marsh mat						S6 Blows: 3-3-4-4 Recovery: 0.5'/2.0' PID/FID: 386/196	10.0
				12.0'-16.0' SILTY CLAY: greenish brown, wood/organics, bottom 6 inches-coarse sand with wood						S7 Blows: 1-1-1-2 Recovery: 2.0'/2.0' PID/FID: 4.9/12.2	
-15.0				TOTAL DEPTH = 16.0 FEET						S8 Blows: 1-1-1-1 Recovery: 2.0'/2.0' PID/FID: 10/2	15.0
-20.0											20.0
-25.0											25.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 16.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/12/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/12/98			BOREHOLE No: 96C123_MW6S		
LOCATION: CAMDEN, NJ			WEATHER: PARTLY CLOUDY, FAIR			Project No: 96-1322-C123		
DRILLED W/CME-55			DRILLED BY: JOHN URBAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION				USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-6.0' SAND: brown, coarse, with angular stones; some black cinders							0.0
-5.0		S1	5							S1 Blows: 1-1-2-3 Recovery: 0.9'/2.0' PID/FID: 0/0	-5.0
		S2	2	6.0'-8.0' SAND: brown, medium-coarse; brick pieces; cinders						S2 Blows: 1-1-1-1 Recovery: 0.5'/2.0' PID/FID: 0/0	
		S3	2	8.0'-9.0' SAND: brown, medium-coarse, slight odor						S3 Blows: 1-1-1-1 Recovery: 2.0'/2.0' PID/FID: 10/10	
				9.0'-16.0' SILTY CLAY: greenish brown, wet, sheen visible, strong odor						Water @ 8.0'	-10.0
-10.0											
-15.0											-15.0
-20.0											-20.0
-25.0											-25.0
				TOTAL DEPTH = 16.0 FEET							

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 16.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/12/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/13/98			BOREHOLE No: 96C123_MW7S		
LOCATION: CAMDEN, NJ			WEATHER: CLOUDY, COOL, LIGHT RAIN			Project No: 96-1322-C123		
DRILLED W/CME-55			DRILLED BY: JOHN URBAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆ 20 40 60 80 ● RQD ● 20 40 60 80 ■ % Recovery ■ 20 40 60 80 ▲ "N" value ▲ 20 40 60 80	SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0					0.0'-6.0' Piece of concrete plugged end of spoon				0.0
-5.0	S1	16						S1 Blows: 6-10-8-8 Recovery: 0.0'/2.0' PID/FID: --	-5.0
	S2	17			6.0'-8.0' CLAYEY SILT: greenish black, with brick pieces and cinders, strong odor, visible product			S2 Blows: 15-15-9-8 Recovery: 1.3'/2.0' PID/FID: off scale	
	S3	13			8.0'-10.0' SILTY SAND: greenish brown, product odor			S3 Blows: 7-6-6-7 Recovery: 1.0'/2.0' PID/FID: off scale Wet @ 8.0'	
-10.0	S4	3			10.0'-11.0' SAND: greenish brown, wet			S4 Blows: 1-1-1-2 Recovery: 2.0'/2.0' PID/FID: 1000/250	-10.0
	S5	3			11.0'-12.0' SILTY CLAY: grayish brown				
					12.0'-16.0' SAND: greenish brown, wet			S5 Blows: 3-4-2-1 Recovery: 1.2'/2.0' PID/FID: 1000	
-15.0									-15.0
-20.0									-20.0
-25.0					TOTAL DEPTH = 16.0 FEET				-25.0

I. ROBERT KIMBALL & ASSOCIATES		LOGGED BY: M.EBEL	COMPLETION DEPTH: 16.0 ft
Ebensburg, Pennsylvania		REVIEWED BY: E.SCIULLI	COMPLETE: 10/13/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/13/98			BOREHOLE No: 96C123_MW8S		
LOCATION: CAMDEN, NJ			WEATHER: CLOUDY, COOL, LIGHT RAIN			Project No: 96-1322-C123		
DRILLED W/CME-55			DRILLED BY: JOHN URBAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input checked="" type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
0.0				0.0'-6.0' SAND: brown, with angular stones, some cinders and brick, damp				0.0
5.0	S1	16	16				S1 Blows: 1-2-1-2 Recovery: 0.3'/2.0' PID/FID: 0/0	5.0
	S2	17	17	6.0'-8.0' ORGANIC MATERIAL: dark brown, fine, with fine sand mixed in; damp			S2 Blows: 2-3-4-5 Recovery: 0.3'/2.0' PID/FID: 24.5/11.2	
	S3	13	13	8.0'-9.2' ORGANIC MATERIAL: dark brown			S3 Blows: 3-3-3-3 Recovery: 1.7'/2.0' PID/FID: 70/500	
10.0	S4	3	3	9.2'-10.0' SAND: greenish, fine, damp			S4 Blows: 2-3-3-1 Recovery: 2.0'/2.0' PID/FID: 30/700	10.0
	S5	3	3	10.0'-11.0' ORGANIC MATERIAL: dark brown			S5 Blows: 2-2-2-3 Recovery: 0.5'/2.0' PID/FID: 0/0	
				11.0'-12.0' CLAY: greenish, with sand lenses				
				12.0'-14.0' ORGANIC MATERIAL: marsh mat, dry				
15.0				TOTAL DEPTH = 14.0 FEET				15.0
20.0								20.0
25.0								25.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 14.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/13/98
		Fig. No:	Page 1 of 1

MARTIN AARON			START DATE: 10/13/98			BOREHOLE No: 96C123_MW9S		
LOCATION: CAMDEN, NJ			WEATHER: CLOUDY, COOL, LIGHT RAIN			Project No: 96-1322-C123		
DRILLED W/CME-55			DRILLED BY: JOHN URBAN, JCA			ELEVATION: 0.000 (ft)		
SAMPLE TYPE			<input checked="" type="checkbox"/> Shelby Tube <input type="checkbox"/> Split Spoon <input type="checkbox"/> Roller Bit <input type="checkbox"/> Drilled Casing <input type="checkbox"/> Hollow Stem <input type="checkbox"/> Core					

DEPTH (ft)	SAMPLE TYPE	SAMPLE NO	SPT(N)	◆ % Core Recovery ◆				SOIL DESCRIPTION	USC	SOIL SYMBOL	FIELD DATA	ELEVATION (ft)
				20	40	60	80					
				● RQD ●								
				20	40	60	80					
				■ % Recovery ■								
				20	40	60	80					
				▲ "N" value ▲								
				20	40	60	80					
0.0								0.0'-6.0' SAND: dark brown, gravel; organic flicks				0.0
-5.0		S1	6								S1 Blows: 2-3-4-2 Recovery: 0.8'/2.0' PID/FID: 0/0	-5.0
		S2	18					6.0'-8.0' SAND: brown, gravel, brick pieces, slightly damp, orange flicks			S2 Blows: 4-2-6-12 Recovery: 0.8'/2.0' PID/FID: 54/0	
		S3	16					8.0'-8.6' SAND: brown, coarse, wet 8.6'-9.2' SILTY MATERIAL: dark brown, with organic material, dry 9.2'-12.0' SAND: grayish brown, fine, damp			S3 Blows: 3-3-6-10 Recovery: 1.7'/2.0' PID/FID: .7/0	
-10.0		S4	7								S4 Blows: 3-3-4-3 Recovery: 0.9'/2.0' PID/FID: 38/0	-10.0
		S6	15					12.0'-16.0' SANDY CLAY: brown, with gray and orange mottling, dry			S5 advanced spoon 0.5' and found red brick in the end S6 Blows: 10-15-8-7 Recovery: 0.5'/2.0' PID/FID: 0/0	
-15.0		S7	20								S7 Blows: 7-9-9-11 Recovery: 1.5'/2.0' PID/FID: 0/0	-15.0
		S8	13					16.0'-18.0' SILTY SAND: brown			S8 Blows: 5-6-6-7 Recovery: 0.9'/2.0' PID/FID: 0/0	
		S9	12					18.0'-24.0' SILTY SAND: brown, with gray and orange mottling			Wet @ 18.0' S9 Blows: 3-6-7-5 Recovery: 1.7'/2.0' PID/FID: 0/0	-20.0
-25.0		S10	69					24.0'-26.0' GRAVEL: dense, with coarse			S10 Blows: 15-32-36-33 Recovery: 1.2'/2.0' PID/FID: 0/0	-25.0

L. ROBERT KIMBALL & ASSOCIATES Ebensburg, Pennsylvania		LOGGED BY: M.EBEL	COMPLETION DEPTH: 26.0 ft
		REVIEWED BY: E.SCIULLI	COMPLETE: 10/13/98
		Fig. No:	Page 1 of 2

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-118

Elevation:

Total Depth: 12.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE							
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1		0.0'-8.0' FILL										
2		black, brick, cinders, ash, some silty sand	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0
3			S2	SS	1.5'							2.0'-4.0' S2 PID: 20.0
4	1		S3	SS	1.0'							4.0'-6.0' S3 PID: 15.0
5			S4	SS	0.8'							6.0'-8.0' S4 PID: 5
6	2											
7												
8	-8	8.0'-10.0' FILL										8.0'-10.0' S5 PID: 50.0
9		black, brick, cinders, ash, some silty sand, damp at 10.0'	S5	SS	1.2'							
10	-10	10.0'-12.0' FILL										10.0'-12.0' S6 PID: 50.0
11		black, brick, cinders, ash, some silty sand, wet at 11.0'	S6	SS	1.0'							WATER LEVELS: After Drilling: 24-Hr.:
12	-12											
13		End of Borehole										
14	4											
15												
16												
17	5											
18												
19												
20	6											
21												
22												
23	7											
24												
25												



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Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 1 of 1

300244

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-119

Elevation:

Total Depth: 5.5'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
0		0.0'-5.5' SILTY SAND										0.0'-2.0' S1 PID: 0.0
1		brown, fill, ash, cinder, brick, concrete	S1	SS	1.8'							
2												2.0'-4.0' S2 PID: 25.0
3	1		S2	SS	2.0'							
4												4.0'-5.5' S3 PID: 25.0
5	-5.5		S3	SS	1.5'							
6		End of Borehole										5.5' Auger Refusal WATER LEVELS: After Drilling: 24-Hr.:
7	2											
8												
9												
10	3											
11												
12												
13	4											
14												
15												
16	5											
17												
18												
19												
20	6											
21												
22												
23	7											
24												
25												



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Sheet: 1 of 1

300245

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-120

Elevation:

Total Depth: 10.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE						SAMPLE						
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1		0.0'-2.0' SILTY SAND	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0
2	-2											2.0'-4.0' S2 PID: 0.5
3		2.0'-4.0' FILL	S2	SS	1.5'							
4	-4	cinders, ash, brick, some olive green clay at 3.0'-3.5'										4.0'-6.0' S3 PID: 75.0
5		4.0'-6.0' FILL	S3	SS	1.5'							
6	-6	black, cinders, gravel, brick, slight fuel odor										6.0'-8.0' S4 PID: 50.0
7		6.0'-10.0' FILL	S4	SS	2.0'							
8	-8	black, cinders, gravel, brick, slight fuel odor, wet at 7.0' (saturated)										8.0'-10.0' S5 PID: 25.0
9			S5	SS	1.2'							WATER LEVELS: After Drilling: 24-Hr.:
10	-10											
11		End of Borehole										
12												
13	-4											
14												
15												
16	-5											
17												
18												
19												
20	-6											
21												
22												
23	-7											
24												
25												



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Sheet: 1 of 1

300246

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-121

Elevation:

Total Depth: 12.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, with gravel, loose, brick at 2.0'	S1	SS	1.5'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SILTY SAND brown, with grave, loose, ash, slag, and cinder	S2	SS	2.0'							2.0'-4.0' S2 PID: 1.0
3	-6	4.0'-6.0' ASH CINDER SLAG some brick and gravel	S3	SS	1.3'							4.0'-6.0' S3 PID: 50.0
4	-8	6.0'-10.0' ASH CINDER SLAG some brick and gravel, fuel or solvent odor	S4	SS	2.0'							6.0'-8.0' S4 PID: >100
5	-10		S5	SS	1.8'							8.0'-10.0' S5 PID: >200
6	-12	10.0'-12.0' ASH CINDER SLAG some brick and gravel, strong odor, damp to wet	S6	SS	1.3'							10.0'-12.0' S6 WATER LEVELS: After Drilling: 24-Hr.:
7		End of Borehole										
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												
24												
25												



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Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 1 of 1

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-122

Elevation:

Total Depth: 10.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, with gravel, dry, loose at 1.5', concrete and brick	S1	SS								0.0'-2.0' S1 PID: 0.5
2	-4	2.0'-4.0' SILTY SAND as above, black, some slag and cinder	S2	SS								2.0'-4.0' S2 PID: 8.0
3	-6	4.0'-6.0' SILTY SAND as above, black, some cinder and slag	S3	SS								4.0'-6.0' S3 PID: 5.0
4	-8	6.0'-8.0' CLAYEY SILT as above, ash cinders at 6.5', slag, black, white, clayey silt at 6.5'-8.0'	S4	SS								6.0'-8.0' S4 PID: 15.2
5	-10	8.0'-10.0' CLAYEY SILT brown, organic, wet	S5	SS								8.0'-10.0' S5 PID: 10.0
6		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
7												
8												
9												
10												
11												
12												
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Sheet: 1 of 1

300248

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-123

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose at 0.5', gravel and brick to 1.2', 1.2'-2.0' cinders and slag, black	S1	SS		2.0'							0.0'-2.0' S1 PID: 0.0
2		2.0'-4.0' CINDERS AND SLAG as above, black	S2	SS		1.8'							2.0'-4.0' S2 PID: 0.5
3	-4	4.0'-6.0' CINDERS AND SLAG as above, brown, clayey silt at 6.0'	S3	SS		1.2'							4.0'-6.0' S3 PID: 10.0
4		6.0'-8.0' CLAYEY SILT brown, and gravel, stringer of white, clayey silt, black cinders, slag at 8.0', wet	S4	SS		1.8'							6.0'-8.0' S4 PID: 10.0
5	-6	8.0'-10.0' CLAYEY SILT olive green, organic, wet	S5	SS		1.0'							8.0'-10.0' S5 PID: 20.0
6	-8												
7													
8	-10												
9		End of Borehole											
10													
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													

WATER LEVELS:
After Drilling:
24-Hr.:

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

300249

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-124

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1		0.0'-2.0' SILTY SAND brown, loose gravel at 1.0', brick 1.5'-2.0', brown silty sand	S1	SS		2.0'						0.0'-2.0' S1 PID: 0.0
2	-2	2.0'-4.0' CINDERS AND SLAG black, ash, loose, dry	S2	SS		2.0'						2.0'-4.0' S2 PID: 0.0
3	-4	4.0'-6.0' CINDERS AND SLAG as above, brown and oragne	S3	SS		1.8'						4.0'-6.0' S3 PID: 5.2
4	-6	6.0'-8.0' CINDERS AND SLAG as above, at 6.5' black cinder and slag, at 8.0' clayey silt, organic, olive green, wet	S4	SS		1.5'						6.0'-8.0' S4 PID: 10.0
5	-8	8.0'-10.0' CLAYEY SILT as above, wet	S5	SS		1.5'						8.0'-10.0' S5 PID: 10.5
6	-10	End of Borehole										
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
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20												
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22												
23												
24												
25												

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

300250

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-125

Elevation:

Total Depth: 13.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE					SAMPLE							
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1												
2												
3	1											
4												
5		5.0'-7.0' SILTY SAND										5.0'-7.0' S1
6		black, medium to fine-grained, dry, clayey silt, white at 7.0'	S1	SS	1.5'							PID: 24.5
7	-7	7.0'-9.0' CLAYEY SILT										7.0'-9.0' S2
8		white, as above, clayey silt, damp, some gravel at 7.5', silty sand, cinder, slag	S2	SS	2.0'							PID: 57.2
9	-9	9.0'-11.0' CINDER AND SLAG										9.0'-11.0' S3
10	-3	as above, wet at 10.5', clayey silt	S3	SS	2.0'							PID: 10.0
11	-11	11.0'-13.0' CLAYEY SILT										11.0'-13.0' S4
12		brown, organic, as above	S4	SS	1.5'							PID: 0.0
13	-13	End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
14												
15												
16	5											
17												
18												
19												
20	6											
21												
22												
23	7											
24												
25												



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300251

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-126

Elevation:

Total Depth: 13.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1												
2												
3	-1											
4												
5		5.0'-7.0' SILTY SAND										5.0'-7.0' S1
6		brown to black cinders, slag, ash, loose, odor	S1	SS		0.8'						PID: 56.5
7	-2											7.0'-9.0' S2
8		7.0'-9.0' SILTY SAND										PID: 28.2
9		as above, clayey silt at 9.0', brown, wet	S2	SS		1.2'						
10	-3											9.0'-11.0' S3
11		9.0'-11.0' CLAYEY SILT										PID: 5.0
12		as above, silty sand at 10.0', medium to fine grained, wet	S3	SS		0.7'						
13	-4											11.0'-13.0' S4
14		11.0'-13.0' CLAYEY SILT										PID: 5.0
15		as above	S4	SS		1.3'						
16	-5											WATER LEVELS:
17		End of Borehole										After Drilling:
18												24-Hr.:
19												
20	-6											
21												
22												
23	-7											
24												
25												



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300252

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-127

Elevation:

Total Depth: 13.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1												
2												
3												
4	1											
5		5.0'-7.0' CINDER AND SLAG										5.0'-7.0' S1
6		some silty sand, black, moist	S1	SS		1.0'						PID: 10.0
7	2	7.0'-9.0' CINDER AND SLAG										7.0'-9.0' S2
8		as above, clayey silt at 8.0', very damp at 8.5', sand medium to	S2	SS		1.2'						PID: 15.0
9		fine-grained, some cinder										
10	3	9.0'-11.0' CINDER AND CLAY										9.0'-11.0' S3
11		as above, wet	S3	SS		0.8'						PID: 0.0
12		11.0'-13.0' CINDER AND SLAG										11.0'-13.0' S4
13		as above, wet	S4	SS		0.5'						PID: 0.0
14	4	End of Borehole										WATER LEVELS:
15												After Drilling:
16												24-Hr.:
17	5											
18												
19												
20	6											
21												
22												
23	7											
24												
25												



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300253

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-128

Elevation:

Total Depth: 13.2'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE				SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1												
2												
3	1											
4												
5												
6		5.2'-7.2' CINDER, SLAG AND GRAVEL black, slight odor, olive green clay at 7.0'	S1	SS		1.5'						5.2'-7.2' S1 PID: 51.0
7	-7.2											
8		7.2'-9.2' CLAYEY SILT olive green, damp	S2	SS		2.0'						7.2'-9.2' S2 PID: 25.0
9	-9.2											
10		9.2'-11.2' CLAYEY SILT as above, wet at 9.5', olive green, clayey silt	S3	SS		2.0'						9.2'-11.2' S3 PID: 5.0
11	-11.2											
12		11.2'-13.2' CLAYEY SILT as above 12.0', cinder, ash and slag, wet at 13.', sand, some silt, brown, wet	S4	SS		1.7'						11.2'-13.2' S4 PID: 5.0
13	-13.2											
14		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
15												
16												
17	5											
18												
19												
20	6											
21												
22												
23	7											
24												
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300254

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-129

Elevation:

Total Depth: 12.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, gravelly, organic, loose, at 2.0' cinder and slag	S1	SS	1.5'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' CINDERS AND SLAG as above	S2	SS	1.5'							2.0'-4.0' S2 PID: 0.0
3	-6	4.0'-6.0' CINDERS AND SLAG as above, slight odor	S3	SS								4.0'-6.0' S3 PID: 0.0
4	-8	6.0'-8.0' CINDERS AND SLAG as above, odor, wet at 8.0'	S4	SS								6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' CLAYEY SILT mottled brown and olive green	S5	SS								8.0'-10.0' S5 PID: 0.0
6	-12	10.0'-12.0' CLAYEY SILT as above, wet	S5	SS								10.0'-12.0' S6 PID: 0.0
7		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
8												
9												
10												
11												
12												
13												
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300255

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-130

Elevation:

Total Depth: 10.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE				SAMPLE												
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks				
							10	30	50	70	90					
0	0	Ground Surface														
1	-2	0.0'-2.0' SILTY SAND brown, with some gravel, 0.5'-1.0' orange, brown sand, medium to fine-grained, 1.0'-2.0' brown, silty sand	S1	SS	1.2'								0.0'-2.0' S1 PID: 0.0			
2																
3	-4	2.0'-4.0' SILTY SAND as above, brown, silty sand, more silty, organic material	S2	SS	2.0'								2.0'-4.0' S2 PID: 0.0			
4																
5	-6	4.0'-6.0' SILTY SAND as above, at 5.0' clayey silt, mottled brown and olive green	S3	SS	1.3'								4.0'-6.0' S3 PID: 5.0			
6																
7	-8	6.0'-8.0' CLAYEY SILT as above, stringers of white and gray, clayey silt, wet at 8.0'	S4	SS	1.2'								6.0'-8.0' S4 PID: 5.0			
8																
9	-10	8.0'-10.0' CLAYEY SILT as above, wet	S5	SS	1.0'								8.0'-10.0' S5 PID: 0.0			
10																
11		End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:			
12																
13	-4															
14																
15																
16	-5															
17																
18																
19																
20	-6															
21																
22																
23	-7															
24																
25																



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300256

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-131

Elevation:

Total Depth: 10.0'

Start: 12/7/99

Complete: 12/7/99

Weather: Rain, cool, 40 deg. F

SUBSURFACE PROFILE						SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft	Recovery	"N" Value							
							10	30	50	70	90			
0	0	Ground Surface												
1	-2	0.0'-2.0' SILTY SAND 0.0'-1.0' silty sand, brown, some gravel, loose, at 1.0' cinders and ash	S1	SS		1.5'							0.0'-2.0' S1 PID: 0.0	
2		2.0'-4.0' CINDERS AND ASH as above, black	S2	SS		1.0'							2.0'-4.0' S2 PID: 0.0	
3	-4	4.0'-6.0' CINDERS AND ASH as above, silty sand, black cinder and slag	S3	SS		1.0'							4.0'-6.0' S3 PID: 0.0	
4	-6	6.0'-8.0' CINDER AND SLAG as above, strong odor, wet at 8.0'	S4	SS		1.5'							6.0'-8.0' S4 PID: 85.0	
5	-8	8.0'-10.0' CLAYEY SILT mottled brown and olive green, silty sand, brown, at 10.0', wet	S5	SS		1.8'							8.0'-10.0' S5 PID: 0.0	
6	-10	End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:	
7														
8														
9														
10														
11														
12														
13	-4													
14														
15														
16	-5													
17														
18														
19														
20	-6													
21														
22														
23	-7													
24														
25														



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300257

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-132

Elevation:

Total Depth: 12.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1		0.0'-2.0' CONCRETE brown, sand with some silt, gravelly, loose	S1	SS	1.0'								0.0'-2.0' S1 PID: 0.0
2	-2	2.0'-4.0' CONCRETE											2.0'-4.0' S2 PID: 0.0
3		brown, sand with some silt, less gravel than above, loose	S2	SS	1.0'								
4	-4	4.0'-9.0' CLAYEY SILT											4.0'-6.0' S3 PID: 0.0
5		brown to dark brown, organic matter (peat)	S3	SS	1.5'								
6													6.0'-8.0' S4 PID: 0.0
7	-2		S4	SS	2.0'								
8													8.0'-10.0' S5 PID: 0.0
9	-9		S5	SS	2.0'								
10	-3	9.0'-12.0' SAND brown to light brown, some silt, damp, wet at 11.0'											10.0'-12.0' S6 WATER LEVELS: After Drilling: 24-Hr.:
11			S6	SS	1.5'								
12	-12	End of Borehole											
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													



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300258

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-132-2

Elevation:

Total Depth: 2.0'

Start: 12/9/99

Complete: 12/9/99

Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
0		0.0'-2.0' CONCRETE										
1		4" concrete, silty sand, brown, loose, some gravel	S1	SS	1.8'							0.0'-2.0' S1 PID: 0.0
2	-2											
3		End of Borehole										
4												
5												
6												
7												
8												
9												
10	3											
11												
12												
13	4											
14												
15												
16												
17	5											
18												
19												
20	6											
21												
22												
23	7											
24												
25												

AFTER DRILLING:
After Drilling:
24-Hr.:

AFTER DRILLING:
After Drilling:
24-Hr.:



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Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-133

Elevation:

Total Depth: 12.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1		0.0'-4.0' CONCRETE/SILTY SAND brown, loose, some gravel	S1	SS	1.5'								0.0'-2.0' S1 PID: 0.0
2													2.0'-4.0' S2 PID: 0.0
3			S2	SS	2.0'								
4	-4	4.0'-8.0' CLAYEY SILT brown to dark brown, organic	S3	SS	2.0'								4.0'-6.0' S3 PID: 0.0
5													6.0'-8.0' S4 PID: 0.0
6			S4	SS	1.8'								
7	-2												8.0'-10.0' S5 PID: 0.0
8	-8	8.0'-12.0' SILTY SAND brown to light brown, fine to medium grained, damp to wet	S5	SS	1.6'								
9													10.0'-12.0' S6 WATER LEVELS: After Drilling: 24-Hr.:
10	-3		S6	SS	1.5'								
11	-12												
12		End of Borehole											
13	-4												
14													
15													
16	-5												
17													
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19													
20	-6												
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22													
23	-7												
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25													



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Sheet: 1 of 1

300260

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-134

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SAND some silt, medium to coarse-grained gravel, brown to dark brown, brick at 1.5', 1.5'-2.0' cinders, slag, black	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0	
2		2.0'-4.0' SILTY SAND with cinders and slag, orange, brown, loose, dry	S2	SS	2.0'							2.0'-4.0' S2 PID: 35.2	
3	-4	4.0'-6.0' CINDERS AND SLAG as above, orange, brown at 4.5', silty sand, olive green grading to silt at 5.0'	S3	SS	2.0'							4.0'-6.0' S3 PID: 54.5	
4		6.0'-8.0' CLAYEY SILT olive green and brown, mottled, organic, wet at 8.0'	S4	SS	2.0'							6.0'-8.0' S4 PID: 25.2	
5	-6	8.0'-10.0' CLAYEY SILT as above, wet	S5	SS	2.0'							8.0'-10.0' S5 PID: 0.0	
6	-8												
7	-10	End of Borehole											
8												WATER LEVELS: After Drilling: 24-Hr.:	
9													
10													
11													
12													
13													
14													
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Sheet: 1 of 1

300261

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-135

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE				SAMPLE								Remarks	
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
								10	30	50	70	90	
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND light brown to tan, at 0.8' stained black cinders, slag, at 2.0' gravel	S1	SS		1.5'							0.0'-2.0' S1 PID: 24.3
2	-4	2.0'-4.0' CINDERS AND SLAG black, as above at 3.5', brown, silty sand, moist	S2	SS		1.8'							2.0'-4.0' S2 PID: 0.0
3	-6	4.0'-6.0' SILTY SAND black to dark brown, some cinders, slag at 6.0', light tan to white clayey silt	S3	SS		1.2'							4.0'-6.0' S3 PID: 67.5
4	-8	6.0'-8.0' CLAYEY SILT light tan to white with some medium to coarse sand at 7.5', brown and gray cinders, slag, wet	S4	SS		1.0'							6.0'-8.0' S4 PID: 20.0
5	-10	8.0'-10.0' NO RECOVERY wet	S5	SS		1.5'							8.0'-10.0' S5 PID: 2.0
6		End of Borehole											
7													
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9													
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25													

WATER LEVELS:
After Drilling:
24-Hr.:

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

300262

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-136

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE											
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks				
							10	30	50	70	90					
0	0	Ground Surface														
1	-2	0.0'-2.0' SILTY SAND brown, loose, organic, at 1.0' cinders and slag, black	S1	SS	0.8'								0.0'-2.0' S1 PID: 0.0			
2	-4	2.0'-4.0' SILTY SAND brown with cinders, slag, as above	S2	SS	1.2'								2.0'-4.0' S2 PID: 0.0			
3	-6	4.0'-6.0' SILTY SAND brown with cinders at 5.0', clayey silt, light tan with cinders changing to black at 6.0'	S3	SS	1.8'								4.0'-6.0' S3 PID: 0.0			
4	-8	6.0'-8.0' CINDERS AND SLAG black at 8.0', olive green, clayey silt, wet, organic	S4	SS	1.2'								6.0'-8.0' S4 PID: 0.0			
5	-10	8.0'-10.0' CLAYEY SILT as above, wet	S5	SS									8.0'-10.0' S5 PID: 23.6			
6		End of Borehole														
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WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-137

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, becoming more silty with depth, some gravel at 1.5', gravel, black cinders and slag	S1	SS	1.8'								0.0'-2.0' S1 PID: 0.0
2		2.0'-4.0' CINDERS AND SLAG											2.0'-4.0' S2 PID: 0.0
3	-4	black, as above	S2	SS	1.0'								
4		4.0'-6.0' SLAG AND CINDERS											4.0'-6.0' S3 PID: 35.8
5	-6	brown to orange brown at 5.5', light tan, clayey silt, some medium to coarse-grained sand	S3	SS									
6		6.0'-8.0' CLAYEY SILT											6.0'-8.0' S4 PID: 70.0
7	-8	6.0'-6.5' light tan, as above, then slag, black, to 7.5', 7.5'-8.0' clayey silt, olive green, wet	S4	SS									
8		8.0'-10.0' CLAYEY SILT											8.0'-10.0' S5 PID: 56.0
9	-10	olive green, as above, wet	S5	SS									
10		End of Borehole											
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													

WATER LEVELS:
After Drilling:
24-Hr.:

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-138

Elevation:

Total Depth: 10.0'

Start: 12/9/99

Complete: 12/9/99

Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND dark brown to black, loose, grading to brown, silty sand at 2.0'	S1	SS	1.5'							0.0'-2.0' S1 PID: 29.9	
2	-4	2.0'-4.0' SILTY SAND brown, loose, shell fragments, no cinder	S2	SS	2.0'							2.0'-4.0' S2 PID: 0.0	
3	-6	4.0'-6.0' SILTY SAND as above, no cinder, clean	S3	SS	2.0'							4.0'-6.0' S3 PID: 0.0	
4	-8	6.0'-8.0' SILTY SAND as above, wet at 7.5'	S4	SS	1.8'							6.0'-8.0' S4 PID: 0.0	
5	-10	8.0'-10.0' SILTY SAND as above, wet	S5	SS	1.5'							8.0'-10.0' S5 PID: 0.0	
6		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:	
7													
8													
9													
10													
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12													
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Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-139

Elevation:
 Total Depth: 12.0'
 Start: 12/9/99
 Complete: 12/9/99
 Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown to black, medium to fine-grained, cinder, slag, gravel, black	S1	SS	1.5'								0.0'-2.0' S1 PID: 52.5
2	-4	2.0'-4.0' SILTY SAND as above at 3.8', brown, silty sand, some rounded quartz gravel, loose, no cinder or slag	S2	SS	2.0'								2.0'-4.0' S2 PID: 0.0
3	-6	4.0'-6.0' SILTY SAND as above	S3	SS	1.8'								4.0'-6.0' S3 PID: 0.0
4	-8	6.0'-8.0' SILTY SAND as above, wet at 7.5'	S4	SS	1.0'								6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' SILTY SAND as above, becoming more silty, wet	S5	SS	1.5'								8.0'-10.0' S5 PID: 0.0
6	-12	10.0'-12.0' SILTY SAND as above	S6	SS	0.8'								10.0'-12.0' S6 PID: 0.0
7		End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:
8													
9													
10													
11													
12													
13													
14													
15													
16													
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 Sheet: 1 of 1

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-140

Elevation:

Total Depth: 8.0'

Start: 12/9/99

Complete: 12/9/99

Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND black, some cinder and slag, turning brown at 1.0', brick at 1.5'	S1	SS	1.2'								0.0'-2.0' S1 PID: 0.0
2													
3	-4	2.0'-4.0' BRICK 2.0'-3.0', brown, silty sand at 3.0', medium to fine-grained, damp	S2	SS	1.5'								2.0'-4.0' S2 PID: 0.0
4													
5	-6	4.0'-6.0' SILTY SAND brown, as above	S3	SS	2.0'								4.0'-6.0' S3 PID: 0.0
6													
7	-8	6.0'-8.0' SILTY SAND brown, as above, at 7.5' brick adn concrete	S4	SS	1.2'								6.0'-8.0' S4 PID: 0.0
8													
9		End of Borehole											Auger Refusal 8.0'
10	-3												
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

300267

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-141

Elevation:

Total Depth: 8.0'

Start: 12/9/99

Complete: 12/9/99

Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE							
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown to black gravel, some cinder and ash at 2.0', brown, silty sand, medium to fine grained, no cinder	S1	SS	1.2'							0.0'-2.0' S1 PID: 0.0
2		2.0'-4.0' SILTY SAND										2.0'-4.0' S2 PID: 0.0
3	-4	brown, as above, no cinders, shell fragments at 3.8'	S2	SS	2.0'							
4		4.0'-6.0' CINDERS, SLAG AND SHELL FRAGS										4.0'-6.0' S3 PID: 0.0
5	-6	brown to black, granular	S3	SS								
6		6.0'-8.0' CINDERS, SLAG AND SHELL FRAGS										6.0'-8.0' S4 PID: 0.0
7	-8	as above, at 6.5' clayey silt, olive green, some sand, wet at 7.0'	S4	SS								
8		End of Borehole										
9												
10	-3											
11												
12												
13	-4											
14												
15												
16	-5											
17												
18												
19												
20	-6											
21												
22												
23	-7											
24												
25												

WATER LEVELS:
After Drilling:
24-Hr.:

WATER LEVELS:
After Drilling:
24-Hr.:



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Sheet: 1 of 1

300268

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-142

Elevation:

Total Depth: 8.0'

Start: 12/9/99

Complete: 12/9/99

Weather: Cool, clear 40 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1		0.0'-2.0' CONCRETE 0.0'-0.5' concrete, 0.5'-2.0' brown to black silty sand, cinders, slag	S1	SS		2.0'							0.0'-2.0' S1 PID: 0.0
2	-2	2.0'-4.0' CONCRETE											2.0'-4.0' S2 PID: 10.0
3		as above	S2	SS		1.8'							
4	-4	4.0'-6.0' SILTY SAND											4.0'-6.0' S3 PID: 50.2
5		brown, with gray cinders, slag	S3	SS		1.5'							
6	-6	6.0'-8.0' SILTY SAND											6.0'-8.0' S4 PID: 25.2
7		as above, wet at 7.5'	S4	SS		1.0'							
8	-8												
9		End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:
10	-3												
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													



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Sheet: 1 of 1

300269

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-143

Elevation:

Total Depth: 10.0'

Start: 12/8/99

Complete: 12/8/99

Weather: Cold, clear 35 deg. F

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, some gravel, loose	S1	SS	1.8'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SILTY SAND as above	S2	SS	2.0'							2.0'-4.0' S2 PID: 0.0
3	-6	4.0'-6.0' SAND some silt, orange, brown, lose, some cinder and slag, as above, wet at 8.0'	S3	SS	1.2'							4.0'-6.0' S3 PID: 0.0
4	-8	6.0'-8.0' SAND as above, wet at 8.0'	S4	SS	1.5'							6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' CLAYEY SILT as above, wet at 9.0', clayey silt, black, odor, saturated	S5	SS	1.5'							8.0'-10.0' S5 PID: 0.0
6		End of Borehole										
7												
8												
9												
10												
11												
12												
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22												
23												
24												
25												

WATER LEVELS:
After Drilling:
24-Hr.:

WATER LEVELS:
 After Drilling:
 24-Hr.:



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Sheet: 1 of 1

300270

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-144

Elevation:

Total Depth: 10.0'

Start: 12/3/99

Complete: 12/3/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1		0.0'-2.0' SILTY SAND brown, loose, some gravel	S1	SS	1.5'								0.0'-2.0' S1 PID: 0.0
2	-2	2.0'-4.0' SILTY SAND											2.0'-4.0' S2 PID: 25.2
3		as above, slag, ash, cinder, wood, gravel at 3.5', silty sand, olive green	S2	SS	2.0'								
4	-4	4.0'-6.0' SILTY SAND											4.0'-6.0' S3 PID: 20.0
5		olive green, medium to fine grained, very damp	S3	SS	1.7'								
6	-6	6.0'-8.0' SILTY SAND											6.0'-8.0' S4 PID: 10.0
7		cinder and ash layer at 7.5'-8.0', olive green, clayey silt at 8.0', wet at 8.0'	S4	SS	1.3'								
8	-8	8.0'-10.0' CLAYEY SILT AND SILTY SAND											8.0'-10.0' S5 PID: 10.0
9		as above, wet	S5	SS	1.0'								
10	-10	End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													



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Sheet: 1 of 1

300271

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-145

Elevation:
 Total Depth: 10.0'
 Start: 12/3/99
 Complete: 12/3/99
 Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, gravel, slag and cinders at 1.5'	S1	SS	28.0'								0.0'-2.0' S1 PID: 28.0
2	-4	2.0'-4.0' SILTY SAND as above, slag, cinder, gravel at 3.0', silty sand, brown to light brown, moist, olive green mottling	S2	SS	65.0'								2.0'-4.0' S2 PID: 65.0
3	-6	4.0'-6.0' SILTY SAND as above to 5.0', ash, cinder and slag at 5.0'-6.0', black, with some blue and tan	S3	SS	45.0'								4.0'-6.0' S3 PID: 45.0
4	-8	6.0'-8.0' SILTY SAND as above, olive green, clayey silt at 8.0', wet	S4	SS	0								6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' CLAYEY SILT olive green, wet	S5	SS	0								8.0'-10.0' S5 PID: 0.0
6		End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:
7													
8													
9													
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 Sheet: 1 of 1

300272

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-146

Elevation:

Total Depth: 8.0'

Start: 12/3/99

Complete: 12/3/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, loose, gravel at 1.5', cinder and slag	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SILTY SAND as above 2.0'-3.0', cinder ash and slag, black, at 3.0', silty sand, brown turning olive green at 4.0'	S2	SS	2.0'							2.0'-4.0' S2 PID: 31.0
3	-6	4.0'-6.0' SILTY SAND as above, silty sand, olive green, slag, black at 5.0', clayey silt, tan, moist	S3	SS	1.5'							4.0'-6.0' S3 PID: 12.0
4	-8	6.0'-8.0' SLAG AND CINDER black, at 7.4', clayey silt, olive green, wet	S4	SS	1.5'							6.0'-8.0' S4 PID: 0.0
5		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
6												
7												
8												
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Sheet: 1 of 1

300273

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-147

Elevation:

Total Depth: 10.0'

Start: 12/3/99

Complete: 12/3/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, loose, gravel at 0.5', turning black, slag and cinder	S1	SS	1.8'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SILTY SAND as above, silty sand, black with slag, cinder at 2.8', silty sand, olive green, moist, odor	S2	SS	2.0'							2.0'-4.0' S2 PID: 89.0
3	-6	4.0'-6.0' SILTY SAND olive green, as above	S3	SS	1.2'							4.0'-6.0' S3 PID: 70.0
4	-8	6.0'-8.0' SILTY SAND as above, ash and slag at 7.8'	S4	SS	1.6'							6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' NO RECOVERY spoon wet	S5	SS	0							8.0'-10.0' S5 PID: N/A
6		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
7												
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Sheet: 1 of 1

300274

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-148

Elevation:

Total Depth: 6.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1		0.0'-4.0' SILTY SAND	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0
2		brown, loose, some gravel, at 1.5' cinder, slag, brick, concrete										2.0'-4.0' S2 PID: 0.0
3			S2	SS	1.8'							
4	-4	4.0'-6.0' CINDER										4.0'-6.0' S3 PID: 2.0
5		ash, brick, obstruction at 5.5', wood in bottom of spoon	S3	SS	1.5'							
6	-6	End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
7	-2											
8												
9												
10	-3											
11												
12												
13	-4											
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16	-5											
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Sheet: 1 of 1

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-149

Elevation:

Total Depth: 8.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE									Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, some large gravel, brick at 1.5', cinders and ash	S1	SS		2.0'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' BRICK cinder, ash, slag	S2	SS		1.5'							2.0'-4.0' S2 PID: 0.0
3	-6	4.0'-6.0' SLAG black, cinder and ash	S3	SS		1.5'							4.0'-6.0' S3 PID: 0.0
4	-8	6.0'-8.0' SLAG black, cinder and ash, concrete at 6.5', obstruction at 7.5'	S4	SS		1.2'							6.0'-8.0' S4 PID: 0.0
5		End of Borehole											WATER LEVELS; After Drilling: 24-Hr.:
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7													
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Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-150

Elevation:

Total Depth: 10.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown with gravel, loose, gray slag at 2.0'	S1	SS	2.0'							0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SLAG brick, ash and cinders, solvent odor	S2	SS	1.5'							2.0'-4.0' S2 PID: >100
3	-6	4.0'-6.0' ASH slag, brick, concrete	S3	SS	1.5'							4.0'-6.0' S3 PID: 0.0
4	-8	6.0'-8.0' ASH slag, brick, concrete, very damp at 8.0', green clayey silt, organic	S4	SS	2.0'							6.0'-8.0' S4 PID: 0.0
5	-10	8.0'-10.0' CLAYEY SILT olive green to brown, organic, wet	S5	SS	2.0'							8.0'-10.0' S5 PID: 25.0
6		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:
7												
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Sheet: 1 of 1

300277

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-151

Elevation:

Total Depth: 10.0'

Start: 12/3/99

Complete: 12/3/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE						SAMPLE													
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks							
							10	30	50	70	90								
0	0	Ground Surface																	
1	-2	0.0'-2.0' SILTY SAND brown, with some gravel, loose, dry	S1	SS	1.5'											0.0'-2.0' S1 PID: 0.0			
2																2.0'-4.0' S2 PID: 3.0			
3	-4	2.0'-4.0' SILTY SAND as above, at 3.0' brick, at 3.5'-4.0' silty sand, black, ashes, slag	S2	SS	2.0'														
4																4.0'-6.0' S3 PID: 10.0			
5	-6	4.0'-6.0' SILTY SAND as above, slag, cinders, ash	S3	SS	1.2'														
6																6.0'-8.0' S4 PID: 3.0			
7	-8	6.0'-8.0' SILTY SAND as above, organic, clayey silt at 8.0', very damp	S4	SS	1.7'														
8																8.0'-10.0' S5 PID: 0.0			
9	-10	8.0'-10.0' CLAYEY SILT brown, organic, wet at 9.5'	S5	SS	1.0'														
10		End of Borehole														WATER LEVELS: After Drilling: 24-Hr.:			
11																			
12																			
13	-4																		
14																			
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16	-5																		
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Sheet: 1 of 1

300278

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-152

Elevation:

Total Depth: 8.0'

Start: 12/1/99

Complete: 12/1/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, some gravel at 1.5', cinders, slag	S1	SS	1.5'							0.0'-2.0' S1 PID: 0.0	
2		2.0'-8.0' CINDERS										2.0'-4.0' S2 PID: 50.0	
3	-1	ash slag, loose, slight fuel odor	S2	SS	2.0'							4.0'-6.0' S3 PID: 28.0	
4			S3	SS	1.8'							6.0'-8.0' S4 PID: 10.0	
5			S4	SS	1.3'							8.0' - Refusal Wood at 8.0'	
6	-2												
7	-8												
8		End of Borehole											
9													
10	-3											WATER LEVELS: After Drilling: 24-Hr.:	
11													
12													
13	-4												
14													
15													
16	-5												
17													
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19													
20	-6												
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23	-7												
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Sheet: 1 of 1

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-153

Elevation:

Total Depth: 10.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE			SAMPLE										Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, some gravel at 1.0', black cinder fill	S1	SS		2.0'							0.0'-2.0' S1 PID: 0.0
2													
3	-4	2.0'-4.0' FILL cinder ash, some brick and gravel, fuel odor	S2	SS		2.0'							2.0'-4.0' S2 PID: 61.9
4													
5	-6	4.0'-6.0' FILL cinder ash, some brick and gravel, fuel odor, brown silty sand and 1" gray clay lense at 6.0'	S3	SS		1.0'							4.0'-6.0' S3 PID: 20.0
6													
7	-8	6.0'-8.0' SILTY SAND black to dark brown, cinders, ash, slight fuel odor, very damp at 8.0'	S4	SS		1.8'							6.0'-8.0' S4 PID: 21.6
8													
9	-10	8.0'-10.0' CINDER and ASH wet, sheen and fuel odor at 9.5', olive green organic clay	S5	SS									8.0'-10.0' S5 PID: 0.0 WATER LEVELS: After Drilling: 24-Hr.:
10													
11		End of Borehole											
12													
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Sheet: 1 of 1

300280

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-154

Elevation:

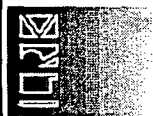
Total Depth: 12.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE							Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					
							10	30	50	70	90	
0	0	Ground Surface										
1	-2	0.0'-2.0' SILTY SAND brown, with some gravel, loose, stained black at 2.0'	S1	SS		1.0'						0.0'-2.0' S1 PID: 0.0
2	-4	2.0'-4.0' SANDY SILT dark brown to black, cinders, ash, some gravel, slight fuel odor	S2	SS		2.0'						2.0'-4.0' S2 PID: 35.2
3	-6	4.0'-6.0' FILL cinder and ash, slight odor	S3	SS		2.0'						4.0'-6.0' S3 PID: 0.3
4	-8	6.0'-8.0' FILL ash and cinder	S4	SS		1.5'						6.0'-8.0' S4 PID: 10.0
5	-10	8.0'-10.0' FILL ash and cinder, very damp at 10.0'	S5	SS		1.0'						8.0'-10.0' S5 PID: 10.0
6	-12	10.0'-12.0' ASH and CINDERS some olive green clay, wet	S6	SS		0.8'						10.0'-12.0' S6 PID: 0.0 WATER LEVELS: After Drilling 24-Hr.:
7		End of Borehole										
8												
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Sheet: 1 of 1

300281

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-155

Elevation:

Total Depth: 12.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE					SAMPLE												Remarks																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Sheet: 1 of 1

300282

Project No: 96-1322-0123
Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-156

Elevation:

Total Depth: 8.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE				SAMPLE								
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
0.0'-3.0'		SILTY SAND										
1		brown, loose, some ash and cinders, dry	S1	SS	1.0'							0.0'-2.0' S1 PID: 10
2												2.0'-4.0' S2 PID: >300
3	-3		S2	SS	2.0'							
4	-4	BRICK										
		cinder, ash, gravel, strong odor, possible product										4.0'-6.0' S3 PID: >500
5		BRICK and CONCRETE	S3	SS	1.5'							
		crushed, ash cinders, strong odor, saturated										6.0'-8.0' S4 PID: >500
6			S4	SS	1.0'							
7	-8											7.5' Refusal WATER LEVELS: After Drilling: 24-Hr.:
8		End of Borehole										
9												
10	-3											
11												
12												
13	-4											
14												
15												
16	-5											
17												
18												
19												
20	-6											
21												
22												
23	-7											
24												
25												



Kimball

L. Robert Kimball & Associates

L. Robert Kimball and Associates
615 W. Highland Ave.
Ebensburg, PA 15931
(814) 472-7700

Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciuilli

Sheet: 1 of 1

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: SB-157

Elevation:

Total Depth: 10.0'

Start: 12/2/99

Complete: 12/2/99

Weather: Cold, Clear, 35 Deg. F.

SUBSURFACE PROFILE						SAMPLE							
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks	
							10	30	50	70	90		
0	0	Ground Surface											
1	-2	0.0'-2.0' SILTY SAND brown, loose, at 0.5' black cinders and ash, at 2.0' brown silty sand	S1	SS		1.5'						0.0'-2.0' S1 PID: 0.0	
2		2.0'-4.0' FILL										2.0'-4.0' S2 PID: 2.0	
3	-4	ash, cinders, brick, some orange/brown, medium to coarse sand 3.0'-3.5' then cinders	S2	SS		2.0'							
4		4.0'-6.0' FILL										4.0'-6.0' S3 PID: 5.0	
5	-6	cinder, slag, and ash	S3	SS		1.5'							
6		6.0'-8.0' FILL										6.0'-8.0' S4 PID: 5.0	
7	-8	cinder, slag, and ash, brown, clayey silt at 8.0', organic	S4	SS		1.8'							
8		8.0'-10.0' CLAYEY SILT										8.0'-10.0' S5 PID: 0.0	
9	-10	organic, brown to dark brown, wet at 9.0'	S5	SS		2.0'							
10		End of Borehole										WATER LEVELS: After Drilling: 24-Hr.:	
11													
12													
13	-4												
14													
15													
16	-5												
17													
18													
19													
20	-6												
21													
22													
23	-7												
24													
25													



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Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 1 of 1

300284

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: MW-115

Elevation:

Total Depth: 18.0'

Start: 12/27/99

Complete: 12/27/99

Weather: Cold, overcast, 20-30 deg. F

SUBSURFACE PROFILE						SAMPLE													
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks							
							10	30	50	70	90								
0	0	Ground Surface																	
0		0.0'-0.2' CONCRETE SIDEWALK																	
1	-1.8	0.2'-1.8' SAND	S1	SS	13		13									0.0'-2.0' S1 Blows: 4-9 PID: 0.0			
2		brown, fine to medium-grained, light to dark with orange flecks																	
3		1.8'-2.0' CINDERS AND ASHES																	
4		black																	
5	-5	5.0'-5.5' SAND														5.0'-7.0' S2 Blows: 3-3-3-4 PID: 0.0			
6		fine to medium-grained, light to dark brown	S2	SS	7		7												
7	-7	5.5'-7.0' SAND														7.0'-9.0' S3 Blows: 9-9-11-9 PID: 0.0			
8	-8	7.0'-8.0' SAND	S3	SS	20		20												
9		fine to medium-grained, brown to dark brown, lens of black cinders and ash at 7.6'-7.8'																	
10		8.0'-9.0' SAND																	
11		medium to coarse-grained with gravel, round, medium, large, light brown to orange to white, dry																	
12	-12	12.0'-14.0' SILTY SAND														12.0'-14.0' S4 Blows: 5-4-8-8 PID: 0.0			
13		light brown, orange, damp	S4	SS	16		16												
14	-14	14.0'-15.0' SAND														14.0'-16.0' S5 Blows: 3-3-5-6 PID: 0.0			
15		fine to medium-grained, light brown with orange mottling, damp, wet	S5	SS	11		11												
16	-16	16.0'-18.0' SAND														16.0'-18.0' S6 Blows: 2-2-2-2 PID: 0.0			
17		fine to medium-grained, light brown with orange mottling, saturated	S6	SS	4		4												
18	-18																		
19		End of Borehole																	
20	-6															WATER LEVELS: After Drilling: 24-Hr.:			
21																			
22																			
23	-7																		
24																			
25																			

WATER LEVELS:
After Drilling:
24-Hr.:



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(814) 472-7700

Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 1 of 1

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: MW-11M

Elevation:

Total Depth: 52.0'

Start: 12/28/99

Complete: 12/28/99

Weather: Cold, Snow, 20-30 deg. F

SUBSURFACE PROFILE					SAMPLE							
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value					Remarks
							10	30	50	70	90	
0	0	Ground Surface										
1												
2												
3	1											
4												
5												
6												
7	2											
8												
9												
10	3											
11												
12												
13	4											
14												
15												
16	5											
17												
18												
19												
20	6											
21												
22												
23	7											
24												
25												



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Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 1 of 3

300286

Project No: 96-1322-0123

Project Name: Martin Aaron

Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: MW-11M

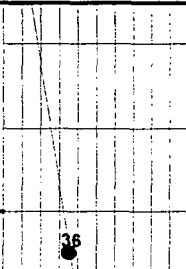
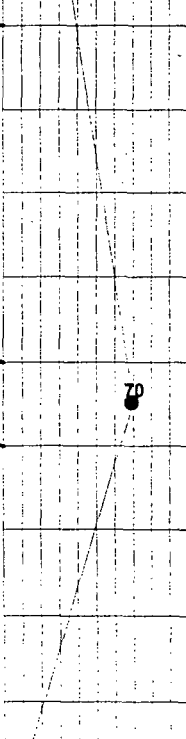
Elevation:

Total Depth: 52.0'

Start: 12/28/99

Complete: 12/28/99

Weather: Cold, Snow, 20-30 deg. F

SUBSURFACE PROFILE				SAMPLE				
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value	Remarks
							10	
26	8	30.0'-32.0' GRAVEL coarse, sand, light brown to white, saturated	S1	SS	36			30.0'-32.0' S1 Blows: 15-25-23-13 PID: 0.0
27								
28								
29								
30								
31								
32								
33	10	40.0'-42.0' SAND medium to coarse-grained, with gravel at bottom, gray, white with orange lenses of fine to medium-grained sand (1" thick), silty	S2	SS	70			40.0'-42.0' S2 Blows: 14-30-31-39 PID: 0.0
34								
35								
36								
37								
38								
39								
40								
41								
42								
43								
44								
45								
46								
47								
48								
49								
50	15							50.0'-52.0' S3



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Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciuilli

Sheet: 2 of 3

300287

Project No: 96-1322-0123
 Project Name: Martin Aaron
 Client: NJDEP

Project Location: Camden City, Camden County, NJ

Log of Borehole: MW-11M

Elevation:

Total Depth: 52.0'

Start: 12/28/99

Complete: 12/28/99

Weather: Cold, Snow, 20-30 deg. F

SUBSURFACE PROFILE					SAMPLE								Remarks
Depth	Elevation	Description	Number	Type	Blows/ft.	Recovery	"N" Value						
							10	30	50	70	90		
51	-52	50.0'-52.0' SAND medium to coarse-grained, with gravel, light brown, orange	S3	SS									Blows: 32-64 PID: 0.0
52													
53	-16	End of Borehole											WATER LEVELS: After Drilling: 24-Hr.:
54													
55													
56	-17												
57													
58													
59	-18												
60													
61													
62	-19												
63													
64													
65	-20												
66													
67													
68													
69	-21												
70													
71													
72	-22												
73													
74													
75													



Kimball

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Drilled by: B. Yoak - JCA

Drill rig: Geoprobe

Checked by: E. Sciulli

Sheet: 3 of 3

300288

Memorandum

TO: Juan Salguero
FROM: Greg Letzo (GPL)
SUBJ.: Martin Aaron Permeability Sample
PROJ.: 96-1322-A123
DATE: August 18, 1997


This memo presents the results of permeability testing requested by you. The material for testing was a combination of three jar samples collectively known as GS-1. Since there are no compaction requirements for this material, we remolded the samples to an approximate density of 106.6 pcf for testing. This test was performed according to the Army Corp of Engineers Method EM 1110-2 Falling Head Permeability. Results of this testing are on table below.

If you have any questions please call.

SAMPLE IDENTIFICATION	MOISTURE CONTENT (%)	SPECIFIC GRAVITY	REMOLDED DENSITY (pcf)	CO-EFFICIENT OF PERMEABILITY
GS-1	16.3	2.64	106.6*	4.1×10^{-4}

* Note: As per Juan Salguero, there are no compaction requirements.

Memorandum

TO: Ed Sculli
FROM: Greg Letzo 
SUBJECT: Martin Aaron Laboratory Test Results
DATE: 1-13-00

Attached are results to testing performed on a jar sample delivered to our lab on January 3, 2000 by Frank Catherine. Testing requested by Frank consisted of one classification performed according to ASTM D2487, using the Unified Soil Classification System (USCS) and one Natural Density, performed according to ASTM D2937. Note that we deviated slightly from this method. A spoon sample was used instead of a drive cylinder.

If you have any questions, call me at extension 268.

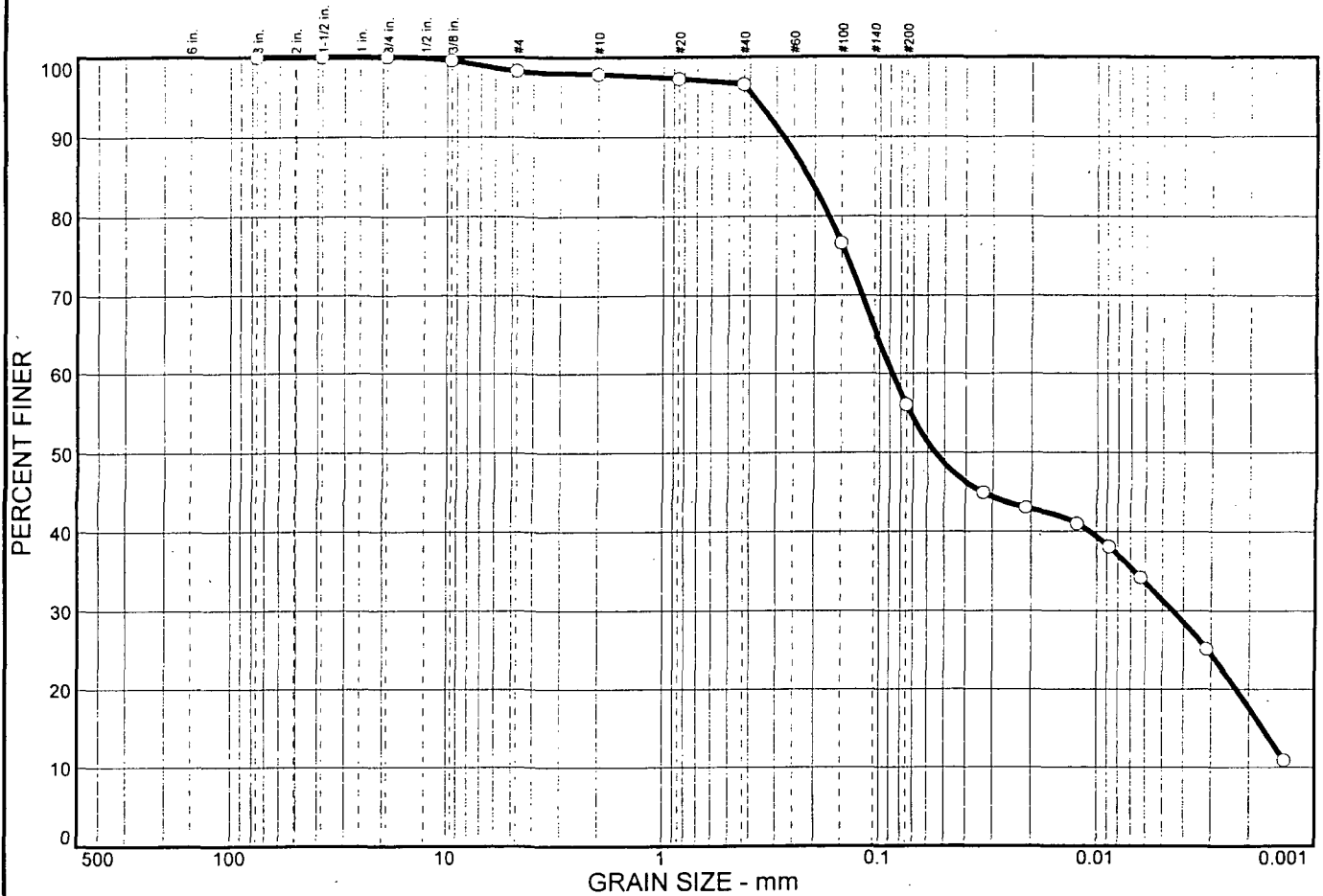
New Jersey DEP
Martin Aaron
Laboratory Test Results
96-1322-G123

January 13, 2000

Boring Number	Sample Identification	Depth (ft)	Dry Density (pcf)	Moisture Content (%)	Liquid Limit	Plasticity Index	Specific Gravity	USCS Classification
MW-11	M-1	55.0-57.0	107.4	17.5	23	10	2.66	CL

300291

PARTICLE SIZE DISTRIBUTION TEST REPORT



% COBBLES	% GRAVEL	% SAND	% SILT	% CLAY
0.0	1.7	42.3	24.6	31.4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100.0		
1.5	100.0		
.75	100.0		
.375	99.6		
#4	98.3		
#10	97.9		
#20	97.3		
#40	96.6		
#100	76.6		
#200	56.0		

* (no specification provided)

Soil Description

Tan Sandy Clay

Atterberg Limits

PL= 13

LL= 23

PI= 10

Coefficients

D₈₅= 0.213

D₆₀= 0.0871

D₅₀= 0.0552

D₃₀= 0.0045

D₁₅= 0.0017

D₁₀=

C_u=

C_c=

Classification

USCS= CL

AASHTO= --

Remarks

Moisture Content: 17.5%

Specific Gravity: 2.66

USCS Classification: Sandy Lean Clay

Sample No.: M-1

Source of Sample: MW-11

Date: 1-13-00

Location: --

Elev./Depth: 55.0'-57.0'

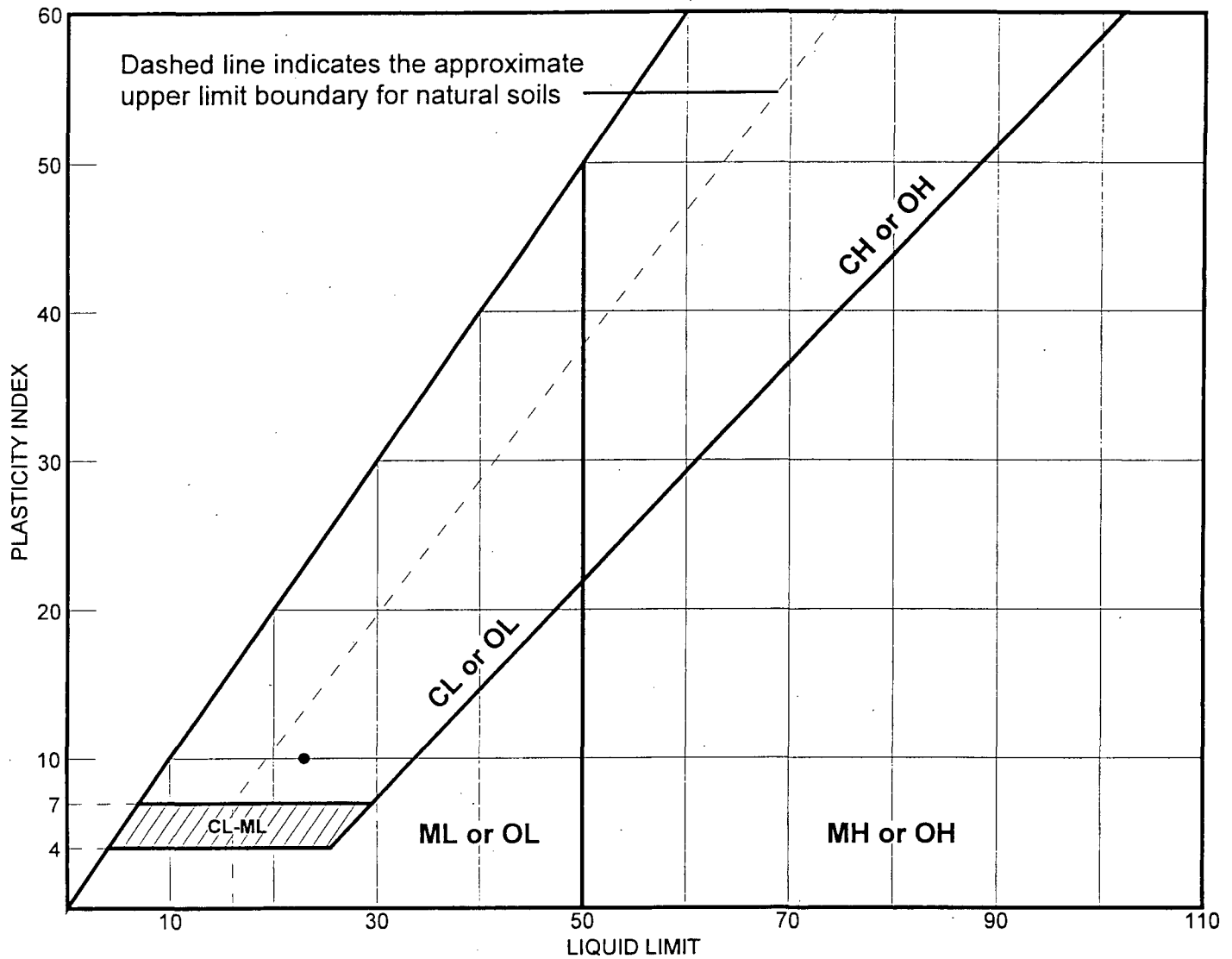
**L. ROBERT KIMBALL
& ASSOCIATES, INC.**

Client: New Jersey DEP

Project: Martin Aaron

Project No: 96-1322-G123

ATTERBERG LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH (ft.)	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
•	MW-11	M-1	55.0'-57.0'	17.5	13	23	10	CL

ATTERBERG LIMITS TEST REPORT
**L. ROBERT KIMBALL
 & ASSOCIATES, INC.**

Client: New Jersey DEP

Project: Martin Aaron

Project No.: 96-1322-G123

NATURAL DENSITY MOISTURE CONTENT VOID RATIO DATA

PROJECT NAME: Martin Aaron DATE: 1-6-55
 PROJECT NUMBER: 96-1322-G123-6003 TEST STANDARD: _____
 BORING NUMBER: MV-11 SAMPLE NUMBER: M-1 DEPTH: 55'-57'
 SAMPLE DESCRIPTION: TAN SANDY CLAY

MOISTURE CONTENT:

TARE NO.: 328 gm
 WET SOIL + TARE: 193.23 gm
 DRY SOIL + TARE: 173.59 gm
 WATER: 19.64 gm
 TARE: 74.42 gm
 DRY SOIL: 99.17 gm
 MOISTURE CONTENT: 19.6 %

NOTE: THIS MOISTURE CONTENT
 REFLECT THE MOISTURE
 content of 1 sample only.

INITIAL CONDITIONS

VOLUME V 57.59
 VOLUME SOLIDS V_s 37.28 ✓
 VOLUME VOIDS V_v 20.31 ✓
 VOLUME WATER V_w 19.64 ✓
 VOID RATIO e 0.544 ✓
 SATURATION % S 96.7 ✓
 STARTING WT. 118.81 gm
 WET UNIT WEIGHT: 128.7 pcf
 DRY UNIT WEIGHT: 107.4 pcf
 SPECIFIC GRAVITY: 2.66 ✓

SAMPLE DIMENSIONS:

INITIAL DIAMETER (D_o) 3.73 ✓ cm
 INITIAL AREA (A_o) 10.93 ✓ cm²
 INITIAL LENGTH (L_o) 5.27 ✓ cm
 INITIAL VOLUME (V_o) 57.59 ✓ cm³

SKETCH:

REMARKS: _____

TECHNICIAN

BPL

CALCULATIONS BY

GR

CHECKED BY

GR

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID	MW1S		Date	8/14/97	
Site Description	Martin Aaron		Sample ID	MW1S-1	
Time	16:47	Temperature	90s	Weather	Partly Cloudy
Analysis Requested	VOC; SV; TAL; Pest/PCB				
Well Depth	14	ft	Well Diameter	4	in
Water Depth	5.54	ft	Casing Height	N/A	ft
Height of Water (HOW)	8.46	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	5.9	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	1 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	30 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	30	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	30	gal			
Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)	
Initial T (0)	16:47	7.7	17.79	2.286	
During					
During					
Final	17:10	7.47	19.53	1.963	

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

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Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID	MW2S	Date	8/15/97	
Site Description	Martin Aaron	Sample ID	MW2S-1	
Time	Temperature	90s	Weather	Clear/Sunny
Analysis Requested	VOC; SV; TAL; Pest/PCB			

Well Depth	16	ft	Well Diameter	4	in.
Water Depth	13.28	ft	Casing Height	N/A	ft
Height of Water (HOW)	2.72	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	1.9	gal			

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer	N/A	gal/L	or	Pump Rate	1	gal/min.
Total No. of Bailers (5EV)	N/A	gal/L	or	Pump Time	9.5	min.
Well Went Dry?	No					
No. of Bailers	N/A		or	Pump Time	N/A	min.
Volume Purged	9.5	gal		Rec. Time	N/A	min.
Purge Again?	No					
Total Volume Removed	9.5	gal				

Cal Ref.	Time	pH	Temp (F/C)	Cond (uOHM/cm)
Initial T (0)	*	*	*	*
During				
During				
Final	*	*	*	*

Site Sketch

SEE SITE PLAN

Comments: * Due to strong odor and discoloration of water, it was decided not to immerse delicate monitoring instrument into it.

Well Purging and Sampling Form

Well Coord. or ID MW3S Date 8/15/97

Site Description Martin Aaron Sample ID MW3S-1

Time 07:30 Temperature 90s Weather Clear/Sunny

Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 16 ft Well Diameter 4 in.

Water Depth 10.98 ft Casing Height N/A ft

Height of Water (HOW) 5.02 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 3.51 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1 gal/min.

Total No. of Bailers (SEV) N/A gal/L or Pump Time 11 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 11 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 11 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/CM)
Initial T (0)	<u>07:30</u>	<u>6.99</u>	<u>17.04</u>	<u>0.824</u>
During	<u>07:37</u>	<u>6.99</u>	<u>16.28</u>	<u>0.611</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>07:40</u>	<u>6.99</u>	<u>16.16</u>	<u>0.580</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW4S Date 8/15/97
Site Description Martin Aaron Sample ID MW4S-1
Time 09:20 Temperature 90s Weather Clear/Sunny
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 14 ft Well Diameter 4 in.
Water Depth 5.25 ft Casing Height N/A ft
Height of Water (HOW) 8.75 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 6.13 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1 gal/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time 20 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 20 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 20 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>09:20</u>	<u>6.80</u>	<u>18.44</u>	<u>1.096</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>09:40</u>	<u>6.66</u>	<u>21.25</u>	<u>1.023</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW1M Date 8/14/97
Site Description Martin Aaron Sample ID MW1M-1 & MW1M-2(dup)
Time 17:40 Temperature 90s Weather Partly Cloudy
Analysis Requested VOC; SV; TAL: Pest/PCB

Well Depth 60 ft Well Diameter 4 in.
Water Depth 13.84 ft Casing Height N/A ft
Height of Water (HOW) 46.16 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 32.31 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 4 gal/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time 22.5 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 90 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 90 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>17:40</u>	<u>6.82</u>	<u>16.68</u>	<u>0.902</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>17:48</u>	<u>6.76</u>	<u>16.06</u>	<u>0.903</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW2M Date 8/15/97
Site Description Martin Aaron Sample ID MW2M-1
Time 11:18 Temperature 90s Weather Clear/Sunny
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 62 ft Well Diameter 4 in.
Water Depth 14.0 ft Casing Height N/A ft
Height of Water (HOW) 48.0 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 33.6 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 4 gal/min.
Total No. of Bailers (5EV) N/A gal/L or Pump Time 25 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 100 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 100 gal

Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)
Initial T (0)	<u>11:20</u>	<u>6.81</u>	<u>17.03</u>	<u>0.845</u>
During	<u>11:26</u>	<u>6.67</u>	<u>16.29</u>	<u>0.947</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>11:35</u>	<u>6.68</u>	<u>16.86</u>	<u>0.964</u>

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID MW3M Date 8/15/97
Site Description Martin Aaron Sample ID MW3M-1
Time 07:46 Temperature 90s Weather Clear/Sunny
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 57 ft Well Diameter 4 in.
Water Depth 15.24 ft Casing Height N/A ft
Height of Water (HOW) 41.76 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 29.23 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 6 gal/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time 20 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 120 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 120 gal

Cal Ref.	Time	pH	Temp (C)	Cond.(uOHM/cm)
Initial T (0)	<u>07:49</u>	<u>7.19</u>	<u>14.88</u>	<u>0.409</u>
During	<u>07:53</u>	<u>6.68</u>	<u>15.40</u>	<u>0.853</u>
During				
Final	<u>08:05</u>	<u>6.77</u>	<u>15.78</u>	<u>0.871</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID Camden City Well #7 Date 8/15/97
Site Description Martin Aaron Sample ID CW7-1 & CW7-2(dup)
Time _____ Temperature 90s Weather clear/Sunny
Analysis Requested VOA (524.2); Low Level BN; Low Level TAL; Pest/PCBs (508)

Well Depth N/A ft/m Well Diameter N/A ft/m
Water Depth N/A ft/m Casing Height N/A ft/m
Height of Water (HOW) N/A ft/m Sandpack Diameter N/A ft/m
Equivalent Volume of Standing Water N/A gal/L

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate N/A gal(L)/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time N/A min.

Well Went Dry? Yes/No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged N/A gal/L Rec. Time N/A min.

Purge Again? Yes/No

Total Volume Removed N/A gal/L

Cal Ref.	Time	pH	Temp (F/C)	Cond. (uMHO/cm)
Initial T (0)	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
During	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
During	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>	<u>N/A</u>
Final	_____	_____	_____	_____

Site Sketch

SEE SITE PLAN

Comments: Sampled from sampling port

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID	MW1S	Date	9/16/97			
Site Description	Martin Aaron	Sample ID	MW1S-2			
Time 13:30	Temperature 90s	Weather	Clear/Sunny			
Analysis Requested	VOC; SV; TAL; Pest/PCB					
Well Depth	14	ft	Well Diameter	4	in	
Water Depth	5.9	ft	Casing Height	N/A	ft	
Height of Water (HOW)	8.1	ft	Sandpack Diameter	8	in.	
Equivalent Volume of Standing Water	5.67	gal				
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)						
Volume of Bailer	N/A	gal/L	or	Pump Rate	2	gal/min.
Total No. of Bailers (5EV)	N/A	gal/L	or	Pump Time	9	min.
Well Went Dry?	No					
No. of Bailers	N/A		or	Pump Time	N/A	min.
Volume Purged	18	gal		Rec. Time	N/A	min.
Purge Again?	No					
Total Volume Removed	18	gal				
Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)		
Initial T (0)	13:48	7.15	19.80	1.853		
During						
During						
Final	13:48	7.15	19.80	1.853		

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID	MW2S	Date	9/16/97	
Site Description	Martin Aaron	Sample ID	MW2S-2	
Time 10:50	Temperature 90s	Weather	Clear/Sunny	
Analysis Requested	VOC; SV; TAL; Pest/PCB			
Well Depth	16 ft	Well Diameter	4 in.	
Water Depth	13.7 ft	Casing Height	N/A ft	
Height of Water (HOW)	2.3 ft	Sandpack Diameter	8 in.	
Equivalent Volume of Standing Water	1.61 gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)				
Volume of Bailer	N/A gal/L	or	Pump Rate 2 gal/min.	
Total No. of Bailers (5EV)	N/A gal/L	or	Pump Time 6 min.	
Well Went Dry?	No			
No. of Bailers	N/A	or	Pump Time N/A min.	
Volume Purged	12 gal		Rec. Time N/A min.	
Purge Again?	No			
Total Volume Removed	12 gal			
Cal Ref.	Time	pH	Temp (F/C)	Cond (uOHM/cm)
Initial T (0)	*	*	*	*
During				
During				
Final	*	*	*	*

Site Sketch

SEE SITE PLAN

Comments: * Due to strong odor and discoloration of water, it was decided not to immerse delicate monitoring instrument into it.

Well Purging and Sampling Form

Well Coord. or ID MW3S Date 9/16/97

Site Description Martin Aaron Sample ID MW3S-2

Time 09:00 Temperature 90s Weather Clear/Sunny

Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 16 ft Well Diameter 4 in.

Water Depth 11.6 ft Casing Height N/A ft

Height of Water (HOW) 4.4 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 3.08 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 2 gal/min.

Total No. of Bailers (SEV) N/A gal/L or Pump Time 6 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 12 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 12 gal

Cal Ref. Time pH Temp (C) Cond (uOHM/CM)

Initial T (0) 09:05 6.87 18.01 0.663

During

During

Final 09:05 6.87 18.01 0.663

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW4S Date 9/16/97
Site Description Martin Aaron Sample ID MW4S-2
Time 08:30 Temperature 90s Weather Clear/Sunny
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 14 ft Well Diameter 4 in.
Water Depth 5.6 ft Casing Height N/A ft
Height of Water (HOW) 8.4 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 5.88 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 2 gal/min.
Total No. of Bailers (5EV) N/A gal/L or Pump Time 10 min.
Well Went Dry? No
No. of Bailers N/A or Pump Time N/A min.
Volume Purged 20 gal Rec. Time N/A min.
Purge Again? No
Total Volume Removed 20 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>08:40</u>	<u>6.85</u>	<u>20.11</u>	<u>0.791</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>08:40</u>	<u>6.85</u>	<u>20.11</u>	<u>0.791</u>

Site Sketch

SEE SITE PLAN

Comments: _____

Well Purging and Sampling Form

Well Coord. or ID MW1M Date 9/16/97
Site Description Martin Aaron Sample ID MW1M-3 & MW1M-4(dup)
Time 13:50 Temperature 90s Weather Clear/Sunny
Analysis Requested VOC; SV; TAL: Pest/PCB

Well Depth 60 ft Well Diameter 4 in.
Water Depth 13.80 ft Casing Height N/A ft
Height of Water (HOW) 46.20 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 32.34 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 5 gal/min.
Total No. of Bailers (5EV) N/A gal/L or Pump Time 20 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 100 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 100 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>14:10</u>	<u>7.06</u>	<u>16.4</u>	<u>0.868</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>14:10</u>	<u>7.06</u>	<u>16.4</u>	<u>0.868</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID	<u>MW2M</u>		Date	<u>9/16/97</u>	
Site Description	<u>Martin Aaron</u>		Sample ID	<u>MW2M-2</u>	
Time	<u>11:20</u>	Temperature	<u>90s</u>	Weather	<u>Clear/Sunny</u>
Analysis Requested	<u>VOC; SV; TAL; Pest/PCB</u>				
Well Depth	<u>62</u>	ft	Well Diameter	<u>4</u>	in.
Water Depth	<u>14.1</u>	ft	Casing Height	<u>N/A</u>	ft
Height of Water (HOW)	<u>47.9</u>	ft	Sandpack Diameter	<u>8</u>	in.
Equivalent Volume of Standing Water	<u>33.53</u>	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	<u>N/A</u>	gal/L	or	Pump Rate	<u>5</u> gal/min.
Total No. of Bailers (SEV)	<u>N/A</u>	gal/L	or	Pump Time	<u>20</u> min.
Well Went Dry?	<u>No</u>				
No. of Bailers	<u>N/A</u>		or	Pump Time	<u>N/A</u> min.
Volume Purged	<u>100</u>	gal		Rec. Time	<u>N/A</u> min.
Purge Again?	<u>No</u>				
Total Volume Removed	<u>100</u>	gal			

Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)
Initial T (0)	<u>*</u>	<u>*</u>	<u>*</u>	<u>*</u>
During	<u> </u>	<u> </u>	<u> </u>	<u> </u>
During	<u> </u>	<u> </u>	<u> </u>	<u> </u>
Final	<u>*</u>	<u>*</u>	<u>*</u>	<u>*</u>

Site Sketch

SEE SITE PLAN

Comments: * Due to strong odor and discoloration of water, it was decided not to immerse delicate monitoring instrument into it.

Well Purging and Sampling Form

Well Coord. or ID MW3M Date 9/16/97

Site Description Martin Aaron Sample ID MW3M-2

Time 09:40 Temperature 90s Weather Clear/Sunny

Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 57 ft Well Diameter 4 in.

Water Depth 15.4 ft Casing Height N/A ft

Height of Water (HOW) 41.6 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 29.12 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 4 gal/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time 20 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 80 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 80 gal

Cal Ref. Time pH Temp (C) Cond.(uOHM/cm)

Initial T (0) 09:45 6.76 16.53 0.825

During

During

Final 09:45 6.76 16.53 0.825

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID	Camden City Well #7		Date	9/16/97	
Site Description	Martin Aaron		Sample ID	CW7-3	
Time	10:15	Temperature	90s	Weather	clear/Sunny
Analysis Requested	VOA (524.2); Low Level BN; Low Level TAL; Pest/PCBs (508)				
Well Depth	N/A	ft/m	Well Diameter	N/A	ft/m
Water Depth	N/A	ft/m	Casing Height	N/A	ft/m
Height of Water (HOW)	N/A	ft/m	Sandpack Diameter	N/A	ft/m
Equivalent Volume of Standing Water	N/A	gal/L			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	N/A gal(L)/min.
Total No. of Bailers (5EV)	N/A	gal/L	or	Pump Time	N/A min.
Well Went Dry?	Yes/No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	N/A	gal/L		Rec. Time	N/A min.
Purge Again?	Yes/No				
Total Volume Removed	N/A	gal/L			
Cal Ref.	Time	pH	Temp (F/C)	Cond. (uMHO/cm)	
Initial T (0)	N/A	N/A	N/A	N/A	
During	N/A	N/A	N/A	N/A	
During	N/A	N/A	N/A	N/A	
Final					

Site Sketch

SEE SITE PLAN

Comments: Sampled from sampling port

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID	MW1S	Date	11/10/98			
Site Description	Martin Aaron	Sample ID	MW1S-3			
Time	13:20	Temperature	50s			
		Weather	Partly Cloudy, Cool			
Analysis Requested	VOC; SV; TAL; Pest/PCB					
Well Depth	14	ft	Well Diameter	4	in	
Water Depth	6.5	ft	Casing Height	N/A	ft	
Height of Water (HOW)	7.5	ft	Sandpack Diameter	8	in.	
Equivalent Volume of Standing Water	5.25	gal				
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)						
Volume of Bailer	N/A	gal/L	or	Pump Rate	1.5	gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	10.7	min.
Well Went Dry?	No					
No. of Bailers	N/A		or	Pump Time	N/A	min.
Volume Purged	16	gal		Rec. Time	N/A	min.
Purge Again?	No					
Total Volume Removed	16	gal				
Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)		
Initial T (0)	11:30	7.96	17.71	4.81		
During						
During						
Final	11:45	8.29	17.22	4.65		

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID MW1M Date 11/10/98

Site Description Martin Aaron Sample ID MW1M-3 & MW1M-4(dup)

Time 12:20 Temperature 50s Weather Partly Cloudy, Cool

Analysis Requested VOC; SV; TAL: Pest/PCB

Well Depth 60 ft Well Diameter 4 in.

Water Depth 6.48 ft Casing Height N/A ft

Height of Water (HOW) 53.5 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 37.45 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1.5 gal/min.

Total No. of Bailers (5EV) N/A gal/L or Pump Time 64 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 96 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 96 gal

Cal Ref. Time pH Temp (C) Cond (uOHM/cm)

Initial T (0) 10:45 7.73 16.14 1.385

During

During

Final 11:45 7.71 15.83 1.451

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW2S Date 11/10/98
Site Description Martin Aaron Sample ID MW2S-3
Time 14:45 Temperature 50s Weather Partly Cloudy, Cool
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 16 ft Well Diameter 4 in.
Water Depth 14.2 ft Casing Height N/A ft
Height of Water (HOW) 1.8 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 1.26 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1.5 gal/min.
Total No. of Bailers (SEV) N/A gal/L or Pump Time 2.5 min.

Well Went Dry? No
No. of Bailers N/A or Pump Time N/A min.

Volume Purged 3.8 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 3.8 gal

Cal Ref.	Time	pH	Temp (F/C)	Cond (uOHM/cm)
Initial T (0)	<u>13:32</u>	<u>10.6</u>	<u>14.9</u>	<u>2.07</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>13:34</u>	<u>10.69</u>	<u>14.9</u>	<u>2.069</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID	MW2M		Date	11/10/98	
Site Description	Martin Aaron		Sample ID	MW2M-3	
Time	15:30	Temperature	50s	Weather	Partly Cloudy, Cool
Analysis Requested	VOC; SV; TAL; Pest/PCB				
Well Depth	62	ft	Well Diameter	4	in.
Water Depth	14.4	ft	Casing Height	N/A	ft
Height of Water (HOW)	47.6	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	33.32	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailers	N/A	gal/L	or	Pump Rate	4 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	25 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	100	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	100	gal			
Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)	
Initial T (0)	14:40	8.91	15.96	1.529	
During					
During					
Final	15:00	7.28	15.78	1.43	

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID MW3S Date 11/11/98
Site Description Martin Aaron Sample ID MW3S-3
Time 10:35 Temperature 50s Weather Cloudy, Rain, Cool
Analysis Requested VOC

Well Depth 16 ft Well Diameter 4 in.
Water Depth 12.52 ft Casing Height N/A ft
Height of Water (HOW) 3.48 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 2.44 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailor N/A gal/L or Pump Rate 2 gal/min.
Total No. of Bailers (5EV) N/A gal/L or Pump Time 4 min.
Well Went Dry? No
No. of Bailers N/A or Pump Time N/A min.
Volume Purged 8 gal Rec. Time N/A min.
Purge Again? No
Total Volume Removed 8 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/CM)
Initial T (0)	<u>10:00</u>	<u>8.19</u>	<u>16.51</u>	<u>1.094</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>10:10</u>	<u>7.39</u>	<u>16.35</u>	<u>1.088</u>

Site Sketch

SEE SITE PLAN

Comments:

300315

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID MW3M Date 11/11/98
Site Description Martin Aaron Sample ID MW3M-3
Time 10:30 Temperature 50s Weather Cloudy,Rain, Cool
Analysis Requested VOC

Well Depth 57 ft Well Diameter 4 in.
Water Depth 15.7 ft Casing Height N/A ft
Height of Water (HOW) 41.3 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 28.91 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 3 gal/min.
Total No. of Bailers (SEV) N/A gal/L or Pump Time 29 min.

Well Went Dry? No
No. of Bailers N/A or Pump Time N/A min.

Volume Purged 87 gal Rec. Time N/A min.
Purge Again? No

Total Volume Removed 87 gal

Cal Ref.	Time	pH	Temp (C)	Cond.(uOHM/cm)
Initial T (0)	<u>9:21</u>	<u>7.49</u>	<u>14.81</u>	<u>1.26</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>9:46</u>	<u>6.45</u>	<u>14.82</u>	<u>1.242</u>

Site Sketch

SEE SITE PLAN

Comments: _____

Well Purging and Sampling Form

Well Coord. or ID MW4S Date 11/10/98
Site Description Martin Aaron Sample ID MW4S-3
Time 19:00 Temperature 50s Weather Partly Cloudy, Cool
Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 14 ft Well Diameter 4 in.
Water Depth 6.15 ft Casing Height N/A ft
Height of Water (HOW) 7.85 ft Sandpack Diameter 8 in.
Equivalent Volume of Standing Water 5.5 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1 gal/min.
Total No. of Bailers (SEV) N/A gal/L or Pump Time 16.5 min.
Well Went Dry? No
No. of Bailers N/A or Pump Time N/A min.
Volume Purged 16.5 gal Rec. Time N/A min.
Purge Again? No
Total Volume Removed 16.5 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>18:15</u>	<u>7.42</u>	<u>17.94</u>	<u>1.381</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>18:25</u>	<u>7.09</u>	<u>17.16</u>	<u>1.213</u>

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

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Well Purging and Sampling Form

Well Coord. or ID	MW5S		Date	11/10/98	
Site Description	Martin Aaron		Sample ID	MW5S-3	
Time	14:45	Temperature	50s	Weather	Partly Cloudy, Cool
Analysis Requested	VOC; SV; TAL: Pest/PCB				
Well Depth	16	ft	Well Diameter	4	in.
Water Depth	12.35	ft	Casing Height	N/A	ft
Height of Water (HOW)	3.65	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	2.55	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	1 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	7.7 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	7.7	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	7.7	gal			
Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)	
Initial T (0)	15:35	8.07	19.3	3.849	
During					
During					
Final	15:45	8.15	19.6	4.052	

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID MW6S Date 11/10/98

Site Description Martin Aaron Sample ID MW6S-3

Time 16:45 Temperature 50s Weather Partly Cloudy, Cool

Analysis Requested VOC; SV; TAL; Pcat/PCB

Well Depth 16 ft Well Diameter 4 in

Water Depth 14.4 ft Casing Height N/A ft

Height of Water (HOW) 1.6 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 1.12 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 0.5 gal/min.

Total No. of Bailers (SEV) N/A gal/L or Pump Time 6.8 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 3.4 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 3.4 gal

Cal Ref.	Time	pH	Temp (C)	Cond (uOHM/cm)
Initial T (0)	<u>16:15</u>	<u>7.86</u>	<u>16.41</u>	<u>2.915</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>16:21</u>	<u>7.48</u>	<u>16.51</u>	<u>2.81</u>

Site Sketch

SEE SITE PLAN

Comments: _____

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

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Well Purging and Sampling Form

Well Coord. or ID	MW7S		Date	11/10/98	
Site Description	Martin Aaron		Sample ID	MW7S-3	
Time	17:15	Temperature	50s	Weather	Partly Cloudy, Cool
Analysis Requested	VOC; SV; TAL; Pest/PCB				
Well Depth	16	ft	Well Diameter	4	in.
Water Depth	12.96	ft	Casing Height	N/A	ft
Height of Water (HOW)	3.04	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	2.13	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	0.5 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	12.8 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	6.4	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	6.4	gal			
Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)	
Initial T (0)	16:50	7.82	15.67	4.907	
During					
During					
Final	17:00	7.8	15.73	1.368	

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

Phone: (814) 472-7700
Fax: (814) 472-7712

Well Purging and Sampling Form

Well Coord. or ID	MW8S		Date	11/10/98	
Site Description	Martin Aaron		Sample ID	MW8S-3	
Time	18:00	Temperature	50s	Weather	Partly Cloudy, Cool
Analysis Requested	VOC; SV; TAL; Pcs/PCB				
Well Depth	14	ft/m	Well Diameter	4	ft/m
Water Depth	6.32	ft/m	Casing Height	NA	ft/m
Height of Water (HOW)	7.68	ft/m	Sandpack Diameter	8	ft/m
Equivalent Volume of Standing Water	5.38	gal/L			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	1 gal(L)/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	16.1 min.
Well Went Dry?	Yes/No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	16.1	gal/L		Rec. Time	N/A min.
Purge Again?	Yes/No				
Total Volume Removed	16.1	gal/L			
Cal Ref.	Time	pH	Temp (F/C)	Cond. (uMHO/cm)	
Initial T (0)	17:30	7.48	17.51	2.423	
During					
During					
Final	17:40	6.95	17.3	2.556	

Site Sketch

SEE SITE PLAN

Comments: Sampled from sampling port

300321

L. Robert Kimball & Associates, Inc.
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Ebensburg, PA 15931

Phone: (814) 472-7700
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Well Purging and Sampling Form

Well Coord. or ID MW9S Date 11/11/98

Site Description Martin Aaron Sample ID MW9S-3

Time 12:40 Temperature 50s Weather Cloudy, Rain, Cool

Analysis Requested VOC; SV; TAL; Pest/PCB

Well Depth 26 ft Well Diameter 4 in.

Water Depth 15.53 ft Casing Height N/A ft

Height of Water (HOW) 10.47 ft Sandpack Diameter 8 in.

Equivalent Volume of Standing Water 7.33 gal

Volume of Water

2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)

4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)

6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer N/A gal/L or Pump Rate 1 gal/min.

Total No. of Bailers (SEV) N/A gal/L or Pump Time 22 min.

Well Went Dry? No

No. of Bailers N/A or Pump Time N/A min.

Volume Purged 22 gal Rec. Time N/A min.

Purge Again? No

Total Volume Removed 22 gal

Cal Ref.	Time	pH	Temp (F/C)	Cond (uOHM/cm)
Initial T (0)	<u>11:45</u>	<u>7.4</u>	<u>18.53</u>	<u>1.215</u>
During	<u></u>	<u></u>	<u></u>	<u></u>
During	<u></u>	<u></u>	<u></u>	<u></u>
Final	<u>12:05</u>	<u>6.83</u>	<u>16.41</u>	<u>1.491</u>

Site Sketch

SEE SITE PLAN

Comments:

Well Purging and Sampling Form

Well Coord. or ID	MW9D		Date	11/11/98	
Site Description	Martin Aaron		Sample ID	MW9D-3	
Time	12:00	Temperature	50s	Weather	Cloudy, Rain, Cool
Analysis Requested	VOC; SV; TAL; Pest/PCB				
Well Depth	54.5	ft	Well Diameter	4	in.
Water Depth	15.43	ft	Casing Height	N/A	ft
Height of Water (HOW)	39.07	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	27.35	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	3 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	27.3 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	82	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	82	gal			
Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)	
Initial T (0)	11:15	7.01	15.95	1.287	
During					
During					
Final	11:35	6.81	15.86	1.377	

Site Sketch

SEE SITE PLAN

Comments:

L. Robert Kimball & Associates, Inc.
615 W. Highland Avenue
Ebensburg, PA 15931

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Well Purging and Sampling Form

Well Coord. or ID	MW10S		Date	11/11/98	
Site Description	Martin Aaron		Sample ID	MW10S-3	
Time	13:30	Temperature	50s	Weather	Cloudy, Rain, Cool
Analysis Requested	VOC; SV; TAL; Pest/PCB				
Well Depth	18	ft	Well Diameter	4	in.
Water Depth	13.82	ft	Casing Height	N/A	ft
Height of Water (HOW)	4.18	ft	Sandpack Diameter	8	in.
Equivalent Volume of Standing Water	2.93	gal			
Volume of Water 2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m) 4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m) 6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)					
Volume of Bailer	N/A	gal/L	or	Pump Rate	1 gal/min.
Total No. of Bailers (SEV)	N/A	gal/L	or	Pump Time	9 min.
Well Went Dry?	No				
No. of Bailers	N/A		or	Pump Time	N/A min.
Volume Purged	9	gal		Rec. Time	N/A min.
Purge Again?	No				
Total Volume Removed	9	gal			
Cal Ref.	Time	pH	Temp (C)	Cond. (uOHM/cm)	
Initial T (0)	13:15	8.61	21.37	1.731	
During					
During					
Final	13:25	7.4	21.41	1.657	

Site Sketch

SEE SITE PLAN

Comments:

WELL SAMPLING FORM

Well Coord. or ID# MWIS Date 1/18/00
Site Description Martin Aaron Sample ID MWIS-4
Project Number _____ Sampler AES - RJK
Time 11:40 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 14 ft Well Diameter _____ ft
Water Depth 5.85 ft Screen Length _____ ft
Height of Water (BOW) 8.15 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 5.32 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ gal
_____ 16 gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed _____ 16 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	10:30	6.88	1345	15.01	0.68	19.44	-121.3	
During	10:35	7.04	1637	15.33	0.83	18.46	-120.7	
During	10:40	7.09	2353	15.73	1.22	17.65	-117.3	
Final	10:45	7.16	2474	15.57	1.28	14.00	-114.8	

WELL SAMPLING FORM

Well Coord. or ID# MWIM Date 1/19/00
Site Description Martin Aaron Sample ID MWIM-6
Project Number _____ Sampler AES - RJK
Time 11:15 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 60 ft Well Diameter _____ ft
Water Depth 13.58 ft Screen Length _____ ft
Height of Water (HOW) 46.42 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 30 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (5EV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed _____ gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	9:55	6.02	955	15.36	0.47	7.38	-17.2	
During	10:00	6.15	929	15.41	0.47	5.39	-74.9	
During	10:05	6.18	922	15.36	0.47	4.87	-74.9	
Final	10:10	6.19	932	15.37	0.47	4.71	-75.1	

WELL SAMPLING FORM

Well Coord. or ID# MW10S Date 1/18/00
Site Description Martin Aaron Sample ID MW10S-4
Project Number _____ Sampler AES - RJK
Time 15:00 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 18 ft Well Diameter _____ ft
Water Depth 12.93 ft Screen Length _____ ft
Height of Water (HOW) 5.07 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 3.31 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ 10 gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed _____ 10 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	15:20	7.34	1758	14.54	0.90	12.59	-41.0	
During	15:22	7.42	1758	16.22	0.89	12.23	-56.9	
During	15:24	7.42	1772	16.22	0.90	10.01	-56.4	
Final	15:26	7.44	1755	16.33	0.87	10.49	-56.9	

WELL SAMPLING FORM

Well Coord. or ID# MW9D Date 1/18/00
Site Description Martin Aaron Sample ID MW9D-4
Project Number _____ Sampler AES - RJK
Time 14:30 Temp. 30 - 40 Weather CLEAR, COLD
Analysis Requested _____

Well Depth 54.5 ft Well Diameter _____ ft
Water Depth 14.76 ft Screen Length _____ ft
Height of Water (HOW) 39.84 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 26 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed 80 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	13:45	7.57	1511	11.25	0.76	20.03	4.2	
During	13:50	7.31	1426	11.26	0.75	13.09	-8	
During	13:55	7.23	1616	15.24	0.82	12.13	-26.5	
Final	14:00	7.18	1616	15.34	0.82	14.03	-26.5	

WELL SAMPLING FORM

Well Coord. or ID# MW9S Date 1/18/00
Site Description Martin Aaron Sample ID MW9S-4
Project Number _____ Sampler AES - RJK
Time 14:45 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 26 ft Well Diameter _____ ft
Water Depth 14.63 ft Screen Length _____ ft
Height of Water (HOW) 11.37 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 7.5 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged 22 gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed 22 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	<u>14:10</u>	<u>7.05</u>	<u>1367</u>	<u>15.24</u>	<u>0.69</u>	<u>13.79</u>	<u>17.1</u>	
During	<u>14:15</u>	<u>7.00</u>	<u>1359</u>	<u>15.25</u>	<u>0.68</u>	<u>12.42</u>	<u>30.0</u>	
During	<u>14:20</u>	<u>7.00</u>	<u>1360</u>	<u>15.27</u>	<u>0.67</u>	<u>12.4</u>	<u>31.0</u>	
Final	<u>14:25</u>	<u>7.00</u>	<u>1326</u>	<u>11.7</u>	<u>0.67</u>	<u>11.99</u>	<u>40.0</u>	

WELL SAMPLING FORM

Well Coord. or ID# MW11S Date 1/18/00
Site Description Martin Aaron Sample ID MW11S-4
Project Number _____ Sampler AES - RJK
Time 12:30 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 21 ft Well Diameter _____ ft
Water Depth 13.23 ft Screen Length _____ ft
Height of Water (HOW) 7.77 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 5 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.
Well Went Dry? Yes / No
No. of Bailers _____ or Pump Time _____ min.
Volume Purged _____ 15 gal Rec. Time _____ min.
Purge Again? Yes / No
Total Volume Removed _____ 15 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	12:00	7.61	1496	11.49	0.76	20.03	97.2	
During	12:05	7.42	1490	11.5	0.75	19.93	91	
During	12:10	7.33	1486	11.45	0.75	19.81	84.3	
Final	12:15	7.3	1484	11.49	0.75	19.72	81.7	

WELL SAMPLING FORM

Well Coord. or ID# MW11M Date 1/18/00
Site Description Martin Aaron Sample ID MW11M-4
Project Number _____ Sampler AES - RJK
Time 12:15 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested

Well Depth 56 ft Well Diameter _____ ft
Water Depth 13.25 ft Screen Length _____ ft
Height of Water (HOW) 42.75 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 28 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.

Total No. of Bailers (5EV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed 83 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	11:35	7.26	2265	14.19	1.17	16.02	166.2	
During	11:40	7.15	2135	14.64	1.1	11.53	162.6	
During	11:45	7.06	2124	14.46	1.09	9.35	156.3	
Final	11:50	7.1	2110	14.52	1.09	7.74	155.2	

WELL SAMPLING FORM

Well Coord. or ID# MW8S Date 1/19/00
Site Description Martin Aaron Sample ID MW8S-4
Project Number _____ Sampler RJK
Time 16:30 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 12.8 ft Well Diameter _____ ft
Water Depth 5.76 ft Screen Length _____ ft
Height of Water (HOW) 7.04 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 4.5 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailers _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.

Volume Purged _____ min.
_____ 14 gal Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed _____ 14 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	16:10	6.63	1729	15.19	0.88	26.41	-83.3	
During	16:13	6.48	1495	15.15	0.85	26.69	-95.2	
During	16:16	6.48	1404	15.77	0.71	24.85	-95.3	
Final	16:19	6.48	1365	15.73	0.69	23.71	-95.3	

WELL SAMPLING FORM

Well Coord. or ID# MW6S Date 1/19/00
Site Description Martin Aaron Sample ID MW6S-4
Project Number _____ Sampler RJK
Time 15:00 Temp. 30 - 40 Weather CLEAR, COLD
Analysis Requested _____

Well Depth 16 ft Well Diameter _____ ft
Water Depth 13.48 ft Screen Length _____ ft
Height of Water (HOW) 2.52 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 1.6 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.
Well Went Dry? Yes / No
No. of Bailers _____ or Pump Time _____ min.
Volume Purged _____ gal Rec. Time _____ min.
Purge Again? Yes / No
Total Volume Removed 6 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	<u>14:05</u>	<u>7.28</u>	<u>34</u>	<u>13.02</u>	<u>0.02</u>	<u>8.58</u>	<u>-98.7</u>	
During	<u>14:08</u>	<u>7.22</u>	<u>43</u>	<u>13.39</u>	<u>0.02</u>	<u>11.44</u>	<u>-100.1</u>	
During	<u>14:11</u>	<u>6.91</u>	<u>3161</u>	<u>15.04</u>	<u>0.02</u>	<u>34.36</u>	<u>-101.1</u>	
Final	<u>14:14</u>	<u>6.88</u>	<u>3124</u>	<u>14.7</u>	<u>0.02</u>	<u>39.74</u>	<u>-101.5</u>	

WELL SAMPLING FORM

Well Coord. or ID# MW55 Date 1/19/00
Site Description Martin Aaron Sample ID MW55-4
Project Number _____ Sampler RJK
Time 14:45 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 16 ft Well Diameter _____ ft
Water Depth 6.93 ft Screen Length _____ ft
Height of Water (HOW) 9.07 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 6 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (5EV) _____ gal or Pump Time _____ min.

Well Went Dry? Yes / No

No. of Bailers _____ or Pump Time _____ min.
Volume Purged _____ gal
Rec. Time _____ min.

Purge Again? Yes / No

Total Volume Removed 18 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	13:35	7.88	3003	15.09	1.58	26.13	-51.7	
During	13:38	7.71	3186	15.4	1.66	29.02	-127.9	
During	13:41	7.55	3299	16.56	1.78	35.12	-176.3	
Final	13:44	7.54	3368	15.70	1.77	34.81	-175.2	

WELL SAMPLING FORM

Well Coord. or ID# MW2M Date 1/19/00
Site Description MARTIN AARON Sample ID MW2M-4
Project Number _____ Sampler RJK
Time 13:45 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 62 ft Well Diameter _____ ft
Water Depth 13.7 ft Screen Length _____ ft
Height of Water (HOW) 48.3 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 31 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailer _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (5EV) _____ gal or Pump Time _____ min.
Well Went Dry? Yes / No
No. of Bailers _____ or Pump Time _____ min.
Volume Purged _____ gal Rec. Time _____ min.
93 gal

Purge Again? Yes / No
Total Volume Removed 93 gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	12:25	6.45	1189	15.51	0.58	11.10	-92.0	
During	12:30	6.27	1106	15.46	0.55	6.54	-81.9	
During	12:35	6.25	1070	15.50	0.53	3.37	-89.0	
Final	12:40	6.17	1050	15.55	0.51	4.13	-72.7	

WELL SAMPLING FORM

Well Coord. or ID# MW2S Date 1/19/00
Site Description MARTIN AARON Sample ID MW2S-4
Project Number _____ Sampler RJK
Time 13:00 Temp. 30 - 40 Weather CLEAR, COLD

Analysis Requested _____

Well Depth 16 ft Well Diameter _____ ft
Water Depth 12.85 ft Screen Length _____ ft
Height of Water (HOW) 3.15 ft Sandpack Diameter _____ ft
Equivalent Volume of Standing Water 2.05 gal

Volume of Water
2" Diam (5.8 cm) = 0.2 gal/ft (0.23 L/m)
4" Diam (10.2 cm) = 0.7 gal/ft (0.81 L/m)
6" Diam (15.2 cm) = 1.5 gal/ft (1.73 L/m)

Volume of Bailor _____ gal or Pump Rate _____ gal/min.
Total No. of Bailers (SEV) _____ gal or Pump Time _____ min.

Well Went Dry? YES

No. of Bailers _____ or Pump Time _____ min.
Volume Purged _____ gal Rec. Time _____ min.
6 gal

Purge Again? NO

Total Volume Removed _____ gal

Cal Ref.	Time	pH	Cond. (uMHO/cm)	Temp. C	Salinity (ppt)	Dissolved Oxygen	Oxidation Potential (mV)	Dissolved Oxygen (%)
Initial T (0)	<u>13:00</u>	<u>9.69</u>	<u>1404</u>	<u>14.83</u>	<u>0.66</u>	<u>3.65</u>	<u>-288.7</u>	
During								
During								
Final								

BUILDING SAFETY INSPECTION REPORT

MARTIN AARON SITE, CANDEM CITY, CANDEM COUNTY, NJ

I. Background and Purpose:

Pursuant to Solicitation No. 95-X-22804, the State of New Jersey awarded a Remedial Investigation/ Remedial Alternatives Analysis Project to L. Robert Kimball and Associates, Inc. (Kimball). As part of the scope of work, the New Jersey Department of Environmental Protection (NJDEP) issued Addendum No. 2 which included the following:

"Prior to the beginning of any work inside the buildings, the area to be investigated will be inspected by a N. J. Licensed Professional Engineer who will evaluate and propose safety measures necessary to protect against possible structural deficiencies of the building and the stresses caused by the planned activities therein. Subsequent to the safety inspection, the Engineer shall submit to the NJDEP a report of the findings and recommendations.

Safety measures, which may entail shoring of walls, scaffolding as overhead protection, or other measures, shall be added to the contract via contract modification, if deemed necessary, upon NJDEP approval"

II. Methodology:

Kimball has engaged Mr. Juan Salguero, project manager and engineer of record, as a licensed professional engineer in the State of New Jersey (Lic. No. 38177) to perform the safety inspection. The safety inspection involves four main components:

1. Review of the scope of work and field inspection to evaluate structural integrity of approximately 35,000-square feet composite structure to safely perform the scheduled activities.
2. Historical review of the facility, other site inspections, and local agencies reports.
3. Issue professional opinion as to degree of safety, required modifications, work constraints, and recommendations to protect drilling and sampling personnel.
4. The guidance provided in the following documents was used in the performance of the safety inspection:
 - Title 29, Code of Federal Regulations, Part 1926, Construction Safety Standards.
 - Technical Requirements for Site Remediation, NJAC 7:26 E, NJDEP.

- Construction Inspection Handbook, James J. O'Brien, PE, Van Nostrand Reinhold, 1974.
- The American Institute of Steel Construction Manual, AISC, Ninth Edition.
- Health and Safety Requirements for Employees Engaged in Field Activities, EPA Order 1440.2, USEPA, 7/12/91.
- Building Construction, Materials and Types of Construction, Whitney Clark Huntington and Robert E. Mickadeit, John Wiley and Sons, Fourth Edition, 1975.

In general, the requirements set forth in each one of the above listed documents are more strict than the structural assessment work performed at the Martin-Aaron Site. However, these documents provide latitude for a qualified person (e.g., professional engineer) to issue an opinion based on available information within the context of planned activities.

The collection of information in this particular evaluation included the following:

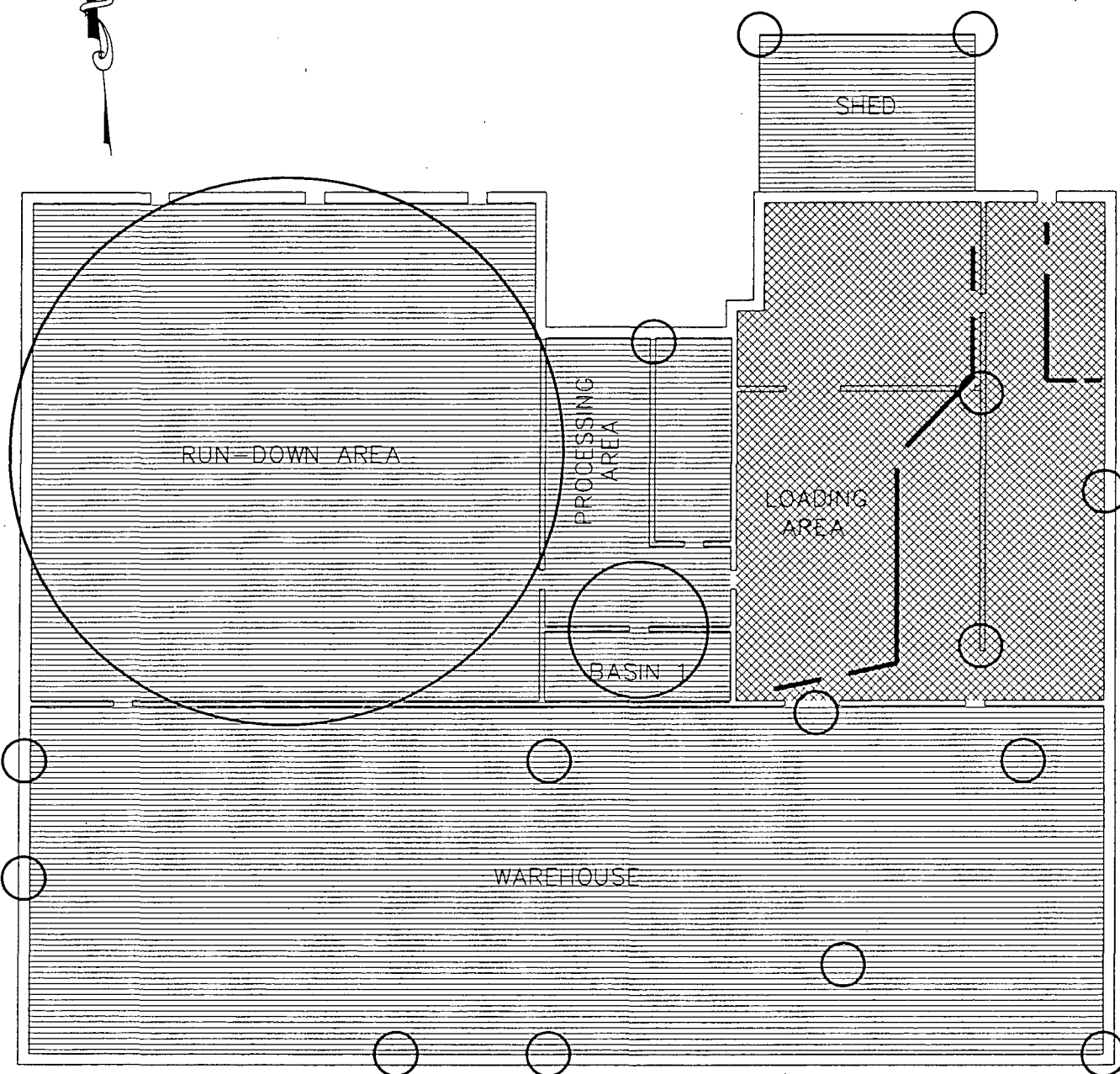
- Site visit during pre-bid meeting on July 12, 1995. During this visit a number of questions were asked about the structural integrity of the facility. NJDEP issued Addendum No. 2 requesting a safety inspection report as part of the scope of work.
- Draft Background Investigation report prepared by Kimball, March through July 1996.
- Several phone calls to local agencies. On March 18, 1996, Herb Leary, Camden Fire Marshall indicated to William Stenger, Kimball's Environmental Specialist, that he had visited/inspected the site and determined that the buildings were structural unsound and were condemned or to be demolished (Please see Attachment 1)
- Letter issued to Chief Leary, dated March 19, 1996, requesting any written reports he may have on his structural assessment. No reports have been identified to date.
- Site Reconnaissance of the facility, the different environments, and areas of concern. Both video tape and photodocumentation of the visual and qualitative structural integrity assessment were performed on April 11, 1996. (Please see Attachment 2)

- Review of revised site activities. In meeting held on August 13, 1996, the Technical Team (NJDEP and Kimball) decided to try to use the inside of the building as drum staging areas. Before this work is performed, the enclosed recommendations should be implemented.
- List of assumptions and/or limitations of the safety inspection from the structural engineering point of view.
- Basic structural computations based on simplifying assumption and anticipated facility conditions. (Please see Attachment 3). No structural computations were attempted for the wood members because of their rotted condition.
- List of recommendations and professional opinion.




III. Assessment and Findings

The following structural concerns were identified during the site reconnaissance. The risks are listed in decreasing order of overall impact to the stability of the building. To facilitate the identification of the areas, Figure 1, **Building Safety Inspection Map**, was prepared.

- 3.1 **Run-Down Area.** Based on visual assessment of poor wall support (see Photos 1 and 2 in Attachment 2), extensive water damage that has created holes in a wooden floor, sagging roof, and buckling walls, this area should be avoided. Because of the non-uniform distribution of the water and structural damage, failure is expected to occur in discrete episodes, avoiding catastrophic failure and allowing enough time for personnel near this area (e.g., Warehouse Area) to evacuate the building. No investigation or use of this area is anticipated in the investigation activities to be performed by Kimball.
- 3.2 **Warehouse Area.** Proper assessment of this area is difficult because of the anisotropic structural properties of wood, the uncertainty of degree of water damage, and the exhibited failure patterns. Photos 9 and 10 show two instances in which shoring of beams had to be performed to avoid total collapse of the girders and beams supporting the ceiling. This area has been proposed to be used as a drum staging area. Because of some drilling scheduled in the area and the potential use as storage of drums, this area should be secured in accordance to the enclosed recommendations before any significant work is initiated under wood damaged super-structures. The brick building surrounding this area provides for a more reliable and stable structure, but the extensive wood water damage that has created holes, perforations, and areas of impending failure are of concern. The most likely historic performance of the building indicates that failure has been discrete, isolated, and sudden. Measures should be taken to minimize exposure to sudden failure. Field intrusive evaluations and periodic monitoring should be implemented to determine likelihood of failure. Areas that have failed or are clear visual hazards should be cordoned off and avoided.



LEGEND:

- FLOOR DRAINS
-  - AREA OF STEEL SUPERSTRUCTURE
-  - AREA OF DAMAGED WOOD SUPERSTRUCTURE
-  - AREAS OF CONCERN

APPROXIMATE SCALE
1 inch ~ 30 ft.

BUILDING SAFETY INSPECTION MAP

MARTIN AARON SITE RI/RAA
CAMDEN CITY, CAMDEN COUNTY, NEW JERSEY

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF PUBLICLY FUNDED SITE REMEDIATION

L. ROBERT KIMBALL & ASSOCIATES, INC.
EBENSBURG, PA & PLEASANTVILLE, NJ

DATE: 08/96

SCALE: AS SHOWN

FIGURE 1

- 3.3. **Processing Area.** This area exhibits wood joists that have failed at the ends, where extensive water damage is exhibited. The plywood underlayment above the joists have also failed, shearing in what appears to be a load failure (Please see Photos 11 and 12 in Attachment 2). Subsurface investigation with a block and tackle tripod is scheduled in this area. Before any intrusive subsurface investigation commences, this area should be secured in accordance to the recommendations included at the end of this report.
- 3.4. **Loading Area.** The area designated as Loading Area will be used as a temporary staging area for drums. Based on visual inspection, this area appears to be secured because of steel girders that support steel joists that support corrugated metal sheeting. However, damage to the support points of the beams on the masonry contact, removal of equipment through a perforation in a brick supporting wall, and demolition of a side wall on the east side have reduced that stability of the Loading Area. Because of the calculations shown in Attachment 3, it is believed that this area is safe except under six feet of snow (an unlikely situation). To avoid masonry failure, this area should be selectively monitored as recommended later in this report.
- 3.5. **Improperly supported pipes and general debris.** This is not a structural flaw *per-se*; however, the miscellaneous debris on the floor, the hanging pipes and obstacles from the ceiling throughout the entire facility represents a hazard. These debris and hanging obstacles should be removed or secured before significant work is initiated inside the facility.
- 3.6. **Exterior Shed.** This is an add-on structure of temporary nature. It is unknown how long has it been in service, but it is clear it was intended for permanent use. The posts supporting this structure should be secured through struts or shoring before work is initiated under this roof.
- 3.7. **Building above the Warehouse.** This area is not structurally safe, it shows extensive water damage and it is loaded with miscellaneous debris, equipment, and drums. It is an off-limits area for the investigation.
- 3.8. **Overall roof stability.** The overall roof stability is poor. In discrete environments or zones it is not safe to work beneath without some kind of protection or shelter. All roofs show signs of weatherization and failure points (e.g., leaking, failure points, sagging). The capping on top of the concrete masonry units is rotted wood, the flashing has lifted and is bent out of shape. The freeze-thaw cycle effects are obvious in the roof/masonry interface.
- 3.9. **Critical Stress Points.** There are half a dozen critical stress points that, although they appear to be statically safe, should be monitored. These include:
- Beam support under opening on east side of Loading Area.
 - Lintels on top of doors in the Loading and Warehouse Areas

- Supports on top of boiler opening that redistributed stresses on supporting three brick wythes wall.
- Two shored or underpinned points in the Warehouse Area.
- Failing joists or rafters throughout the processing and warehouse areas.
- Multiple large cracks exhibited on the bricks and concrete masonry units of the north and east walls.

IV. Assumptions and Limitations.

The above list constitutes only the most obvious and visually apparent physical hazards that involve stability; however, given the limited information and the limited time dedicated to evaluate overall stability of the building, it must be acknowledged that not *all* hazards were identified. The listed hazards were assessed within the following context:

- There is no specific knowledge of as built conditions, historical practices that may have damaged the building (e.g., pouring acid directly on walls), construction quality documentation, material strength, performance documentation and failure history.
- No analysis for wooden structure was attempted because of the lack of adequate information and the inherent structural qualities of wood. No analysis for wind loads, seismic loads, differential settlement, fatigue conditions, creep conditions, corrosive environment conditions, redistribution of stress, redistribution of moments, singular points and soil/foundation interface was attempted. Heavy snow loads of six (6) feet were evaluated.
- In the absence of better data, reasonable and customary assumptions had to be made with respect to strength of materials, deformations, joint connections, and modeling of field conditions.
- No heavy construction will be performed at the site. No ditches, trenches, test pits, or structural removal is scheduled inside the building. No equipment will be suspended from the superstructure of the building.
- Conservative, simplified, limited structural analyses was performed in which the following assumptions were made:
 - ⇒ The rough site dimensions represent acceptable tolerance given the uncertainty of the other parameters.
 - ⇒ Standard dimensions and strength characteristics of commercially available structural elements were used in the analysis.

⇒ Widely accepted principles and guidelines were applied to reduce uncertainty or err on the conservative side; thus, integrating a higher factor of safety in the process.

- The short term, low-impact (minimizing vibrations) type of work to be performed for characterization was considered when writing conclusions and recommendations.

V. Conclusions and Recommendations:

The following recommendations are considered the minimum requirements to protect the welfare of personnel entering the facility for purposes of environmental characterization. If activities are planned after six months or during the winter months, each one of the recommendations should be revisited to assess continued stability hazard.

5.1. The entire building has been deemed condemned and the author of this report concurs with that evaluation; however, for purposes of a short term investigation, a number of measures can be implemented that will secure the building and minimize the potential of catastrophic failures, chain reactions, and bodily harm to Kimball employees and its subcontractors.

5.2. No work should be performed in the Run-Down Area. This area should be deemed off limits. Since no work is to be performed in this area, no monitoring is required, except for evaluation of type and frequency of failures (e.g., falling debris, holes in brick walls, and points of water entry). Any significant failure that may jeopardize the integrity of neighboring structures should be brought to the attention of the professional engineer of record.

5.3. To monitor behavior of the structure in the Loading and Warehouse Areas a system of fifteen to twenty monitors should be installed in critical point such as:

- support areas with deformation or critical for structural integrity
- wide and apparently recent cracks in carrying walls
- extreme fibers of critical wooden beams that may contribute to failure
- struts, scaffold or temporary members that will carry weight
- door lintels and support frames in wall openings

The monitors shall be Avongard Calibrated Crack, Slope, and Movement Monitors or equal (Please see Attachment 4). The monitors should be installed under the supervision of a structural engineer and a Standard Operating Procedure should be developed to read them at least twice a day and determine what movement is due to heat or natural daily stresses, and what movement represents potential failure.

5.4. The Processing Area will have to receive a wooden plank and 4"x4" shoring under the failed joist ends. The location of the struts and planks should be field verified by a structural engineer in the field. The structural engineer should run checking

calculations that the proposed shoring system is adequate to support the superstructure in case of complete failure.

- 5.5. Before drums are moved into the Warehouse Area, a destructive/qualitative test of the supporting beams should be carried out with a regular 8-oz hammer. The hammer should bounce off the beam, if it doesn't, if it penetrates the beam after a regular swing, that area should be marked off as being off limits and the structural engineer should be called in for further instructions. Even if the hammer bounces, leaving a small indentation, the Avongard monitors should be installed at the half point of the span of the beam, at the bottom face, in the center.
- 5.6. The entire building should be deemed a "debris falling" hazard area. Before drilling or sampling activities are started, a detailed visual evaluation of potential debris, pipes, water, and other elements falling should be performed. The trajectory of objects swinging down when they fail at different support areas should be assessed (i. e., one extreme of a pipe breaks but it falls in a circular fashion because it is fastened at the other end). A buffer area that includes the falling object's trajectory and the areas directly below potentially falling objects should be roped or cordoned off and avoided. If these areas must be entered, a protective pipe scaffold with wood planks (min. 2"x12"xL) should be erected and personnel should work beneath the scaffold protection.
- 5.7. The twenty monitors should be installed as per manufacturer's instructions and as directed by the on-site structural engineer. Monitors should be read twice a day for three (3) days, and if no movement has been recorded, daily for the duration of the work. Any movement in excess of 1-mm should be reported to the engineer of record. Any unexplained movement of 3-mm will require a stop of work order and evacuating the premises.

ATTACHMENT 1

Project: MARTIN - AARON 21 / RAA	Date: 3 - 18 - 96	Time: 1:30 PM
Name: SEE BELOW	Proj. No: 96-1322-0123-0001	
Company: CITY OF CAMDEN - DIVISION OF ENGINEERING - ENVIRONMENTAL AFFAIRS	Phone No.: (609) 757-7025	
Discussion: LICENSE & INSPECTION (ROBERT BUCKLER)	(609) 757-7130	
ZONING OFFICE* (ED. WILLIAMS)	(609) 757-7191	
FIRE MARSHAL (HERB LEARY)	(609) 757-7529	
① ENVIRONMENTAL AFFAIRS DIVISION HAS NO RECORDS/INFO ON MARTIN - AARON SITE		
② LICENSE & INSPECTION OFFICE HAS NO RECORDS/INFO ON MARTIN - AARON SITE		
* ③ ALL ZONING RECORDS, MAPS, ETC. ARE AVAILABLE FOR INSPECTION IN RM 419 @ CAMDEN CITY HALL		
④ FIRE MARSHAL WILL PROVIDE COPIES OF INSPECTION REPORTS AND VIOLATION HISTORY UPON WRITTEN REQUEST.		
⑤ FIRE MARSHAL (HERB LEARY) TOLD ME HE HAD VISITED/INSPECTED THE SITE AND DETERMINED THAT THE BUILDINGS WERE STRUCTURALLY UNSOUND AND WERE "CONDEMNED" OR TO BE DEMOLISHED.		
Action Required: WRITE LETTER TO FIRE MARSHAL		
VISIT ZONING OFFICE @ RM 419 CITY HALL		
Employee: BILL STENGER	cc: File	

07/11/96 - 10/12/96

.L & ASSOCIATES, INC.

L. ROBERT KIMBALL & ASSOCIATES

ARCHITECTS & ENGINEERS
615 W. Highland Ave., P.O. Box 1000
Ebensburg, Pennsylvania 15931
Telephone: 814-472-7700
Fax: 814-472-7712

E., P.O. BOX 1000, EBENSBURG, PENNSYLVANIA 15931 - PHONE (814) 472-7700
FAX (814) 472-7712

March 19, 1996

Fire Headquarters
3rd & Federal Streets
Camden, NJ 08101

Attn: Mr. Herb Leary
Chief Fire Marshall

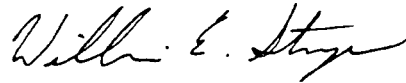
Re: Inspection/Violation Data
Martin Aaron Site
96-1322-0123

Dear Chief Leary:

Pursuant to our phone conversation on 03/19/96, L. Robert Kimball and Associates (LRKA) hereby requests copies of any records or files you have concerning the Martin - Aaron property, located at 1542 S. Broadway, Camden City, N.J. 08104. LRKA is presently conducting an Environmental Investigation of this site for the New Jersey Department of Environmental Protection. The data you provide will be used in the compilation of the background report for the site, as well as aid in the ensuing assessment.

If you have any questions or need additional information, please call me at (814) 472-7700 Ext. 338. As time is a critical factor in our reconnaissance endeavors, any effort to expedite this information would be greatly appreciated.

Sincerely,



William E. Stenger
Environmental Specialist

cc:E. Sciulli
WES/mms
h\96-0123\ed\96LT0319.1

300347

ATTACHMENT 2



Photo 1 -Exterior corner of Run Down Area. Notice buckling of fascia, loose mortar in bricks and exterior wall out of plumb.

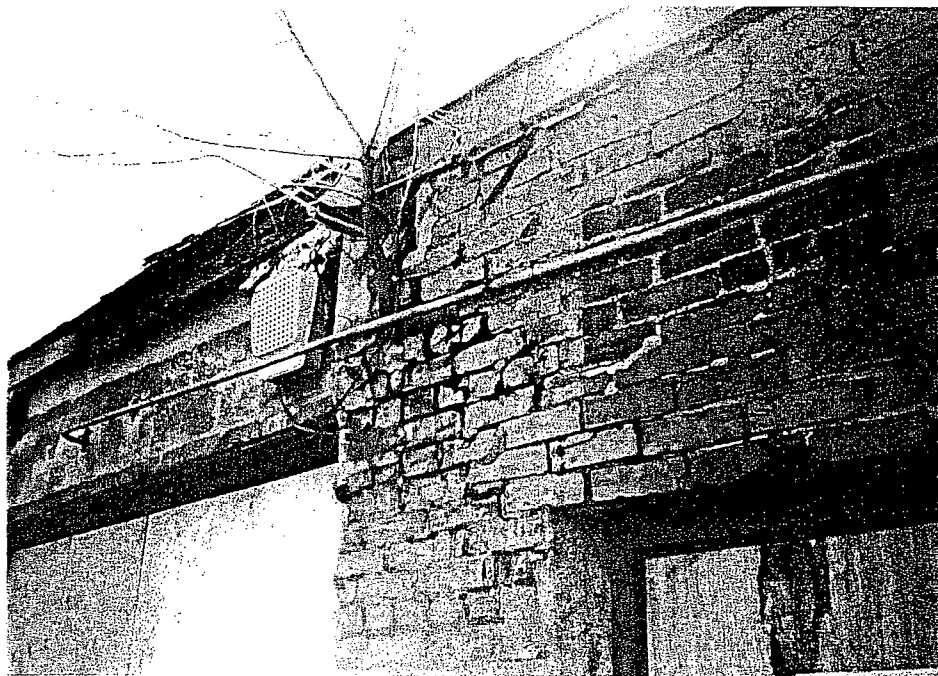


Photo 2 - Rotted wood, vegetative intrusion and disintegration of bricks are part of the extensive damage on the exterior of the Run Down Area.

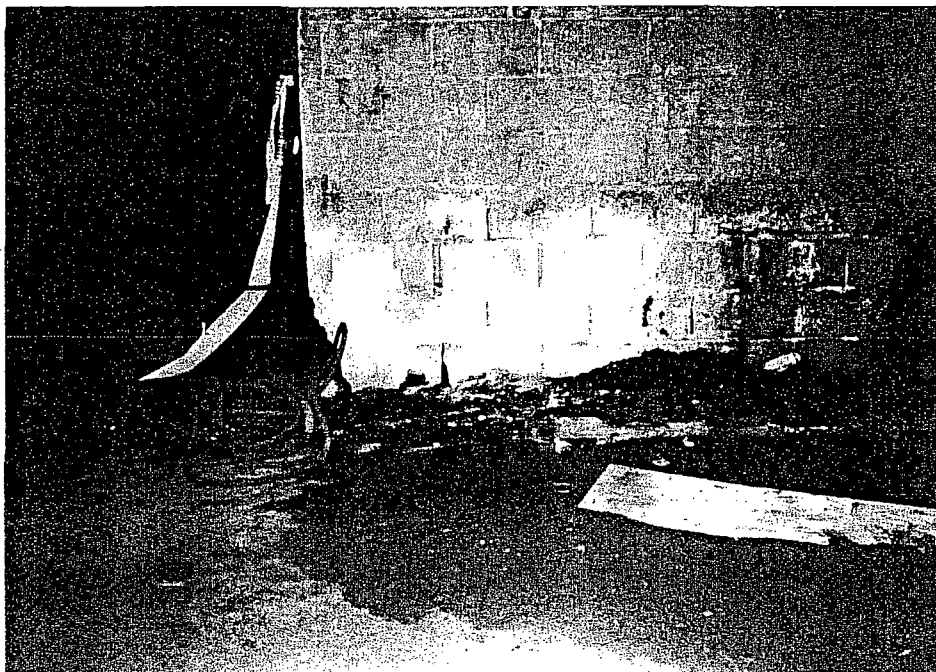
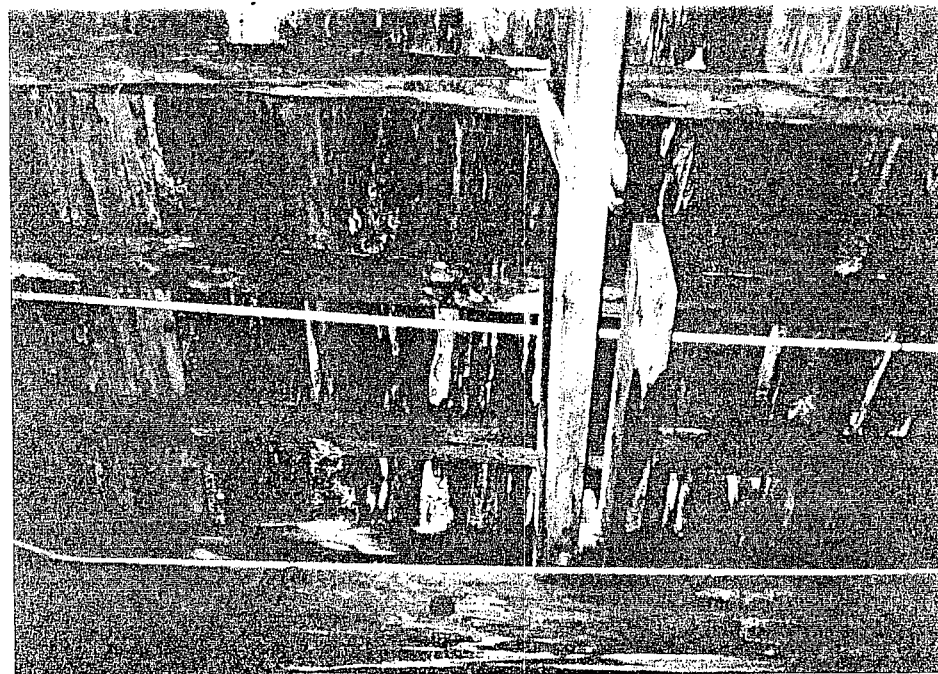
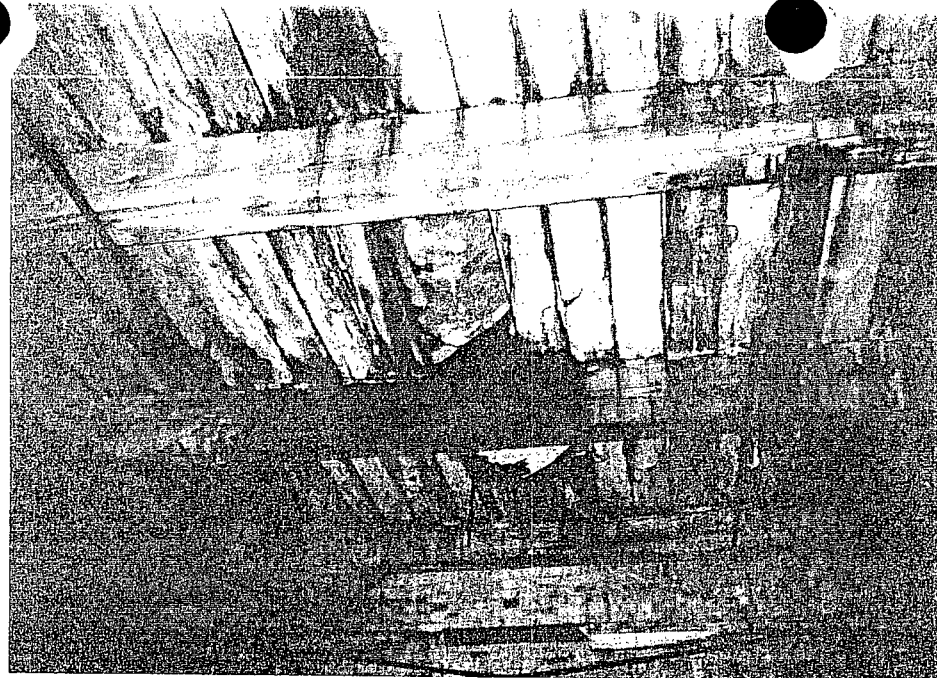
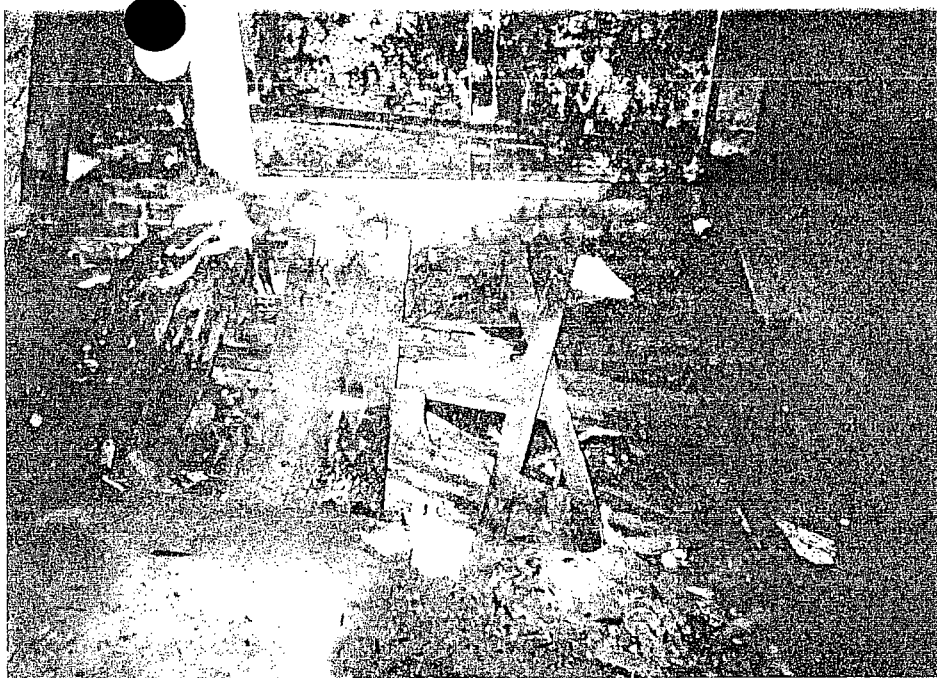


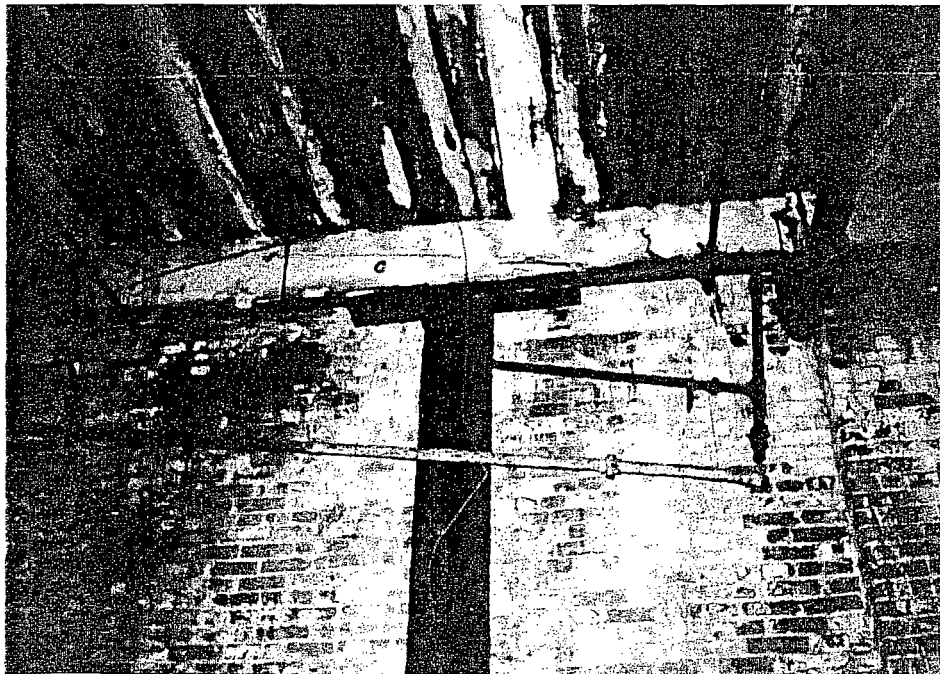
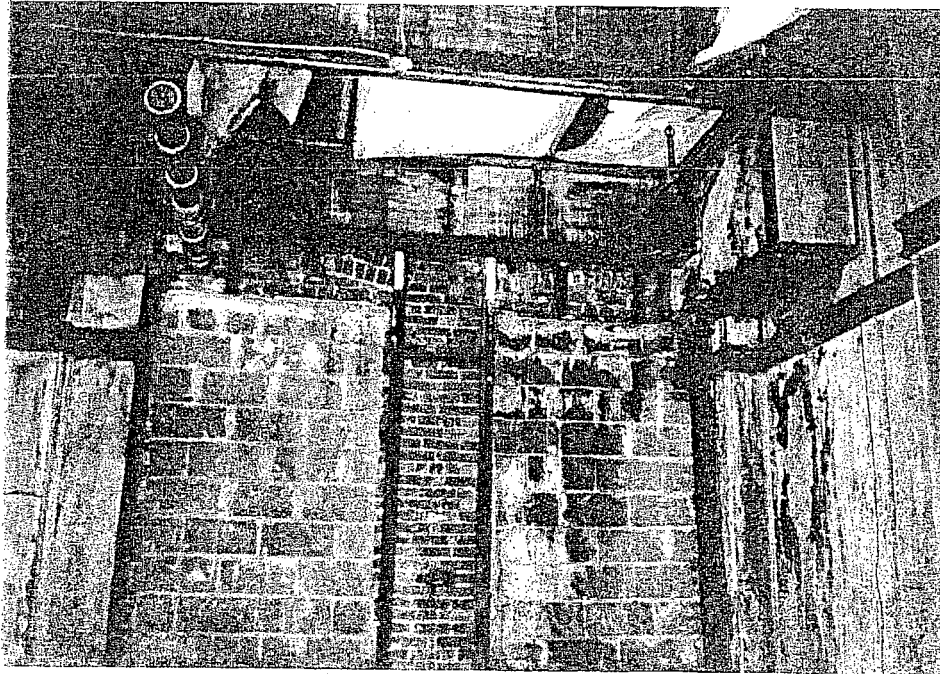
Photo 3 - Block mortar joints and concrete masonry unit disintegration in bearing wall of Storage Area.



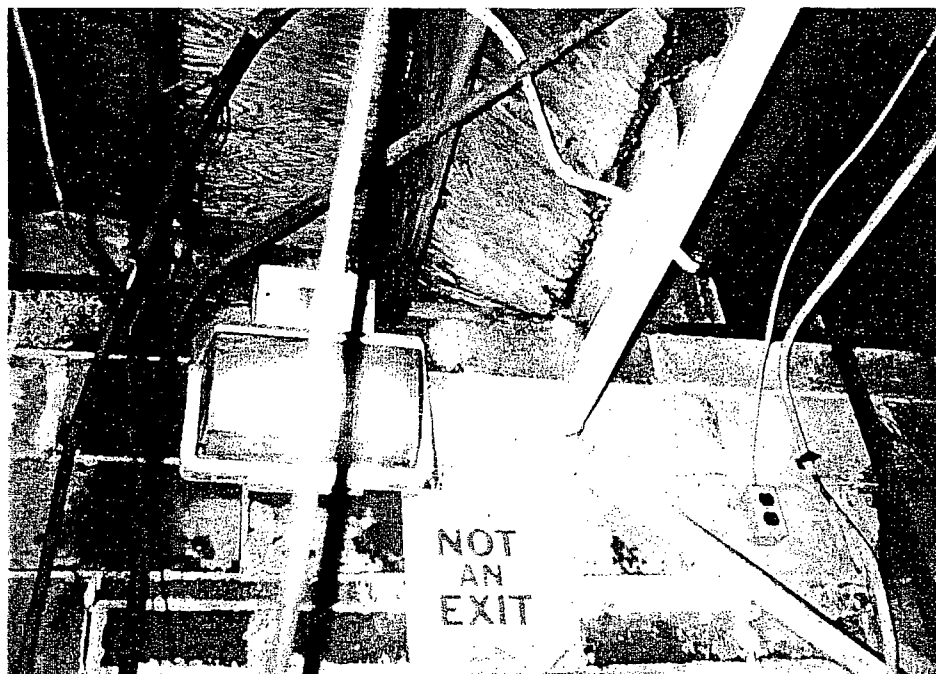
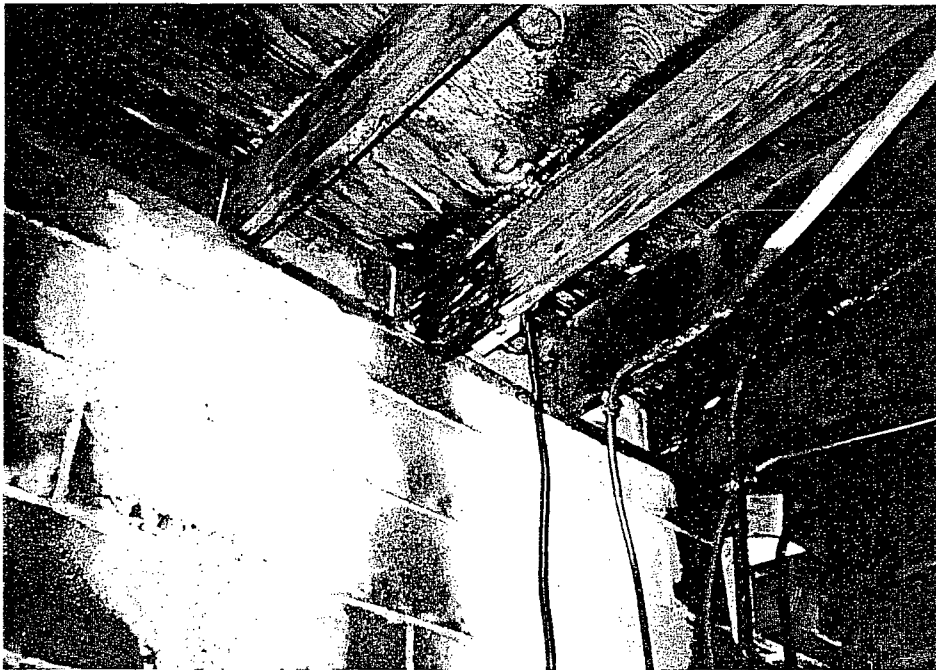
Photo 4 - Corroded steel door frame in Storage Area is an example of extreme corrosive environment.



Photos 5-8 - Examples of extensive water damage in the Warehouse Area. Photos from above and below ceiling.



Photos 9 and 10 - Examples of temporary underpinning to prevent ceiling collapse in the Warehouse Area.



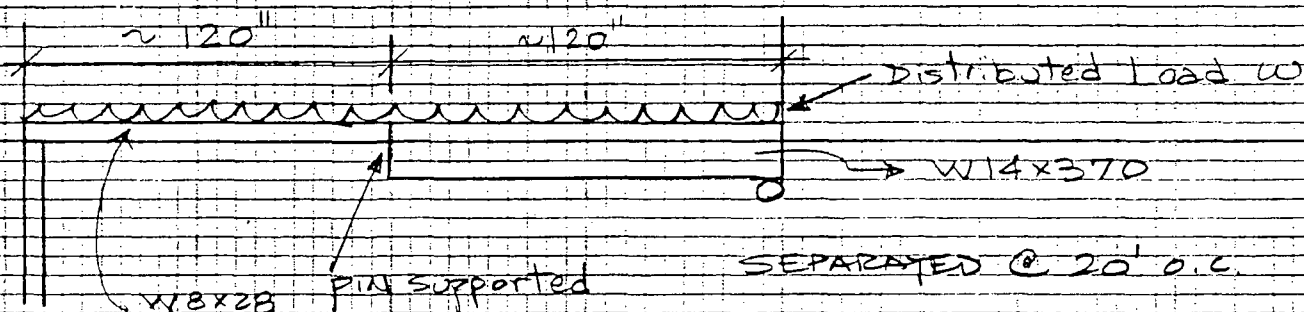
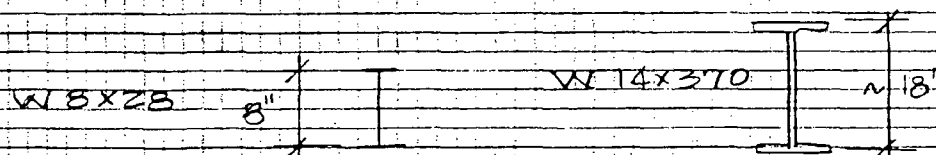
Photos 11 and 12 - Wooden joists end-failure and underlayment sheathing rupture in the Processing Area.

ATTACHMENT 3

PURPOSE: To determine safe load carrying capacity of critical beam sections in building.

METHODOLOGY:

- ① A critical section joist was selected in the field during the site inspection. The beam dimensions are:



② CALCULATION OF DEAD LOAD:

2.1 Weight of beam (use W14x370 weight)	370 lbs/ft.
2.2 Weight of plaster board 90 pcf.	
Each Section 6" x 12" x 12" \Rightarrow 1/2 c.f.	
90 p.c.f. \times 1/2 c.f. \times 20' (space o.c.)	900 lbs/ft.
2.3 Weight of board/roof material	
10 pcf \times 20 ft.	200 lbs/ft.
TOTAL DEAD WEIGHT	1,470 p.f.

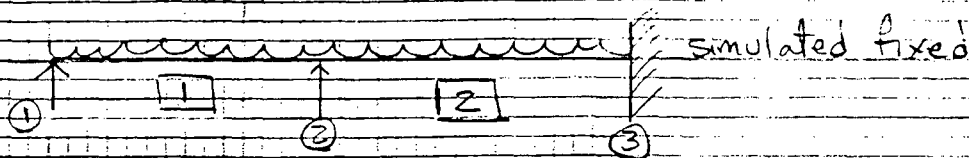
③ CALCULATION OF SNOW LOAD

WET SNOW 6 FOOT \sim 6" OF WATER	
62.4 \times 0.5 \times 20	624 p.f.
PROBABLE LOAD IN WINTER	\sim 2,094 p.f.

Note: ignore live loads since roof should not be walked on in this project.

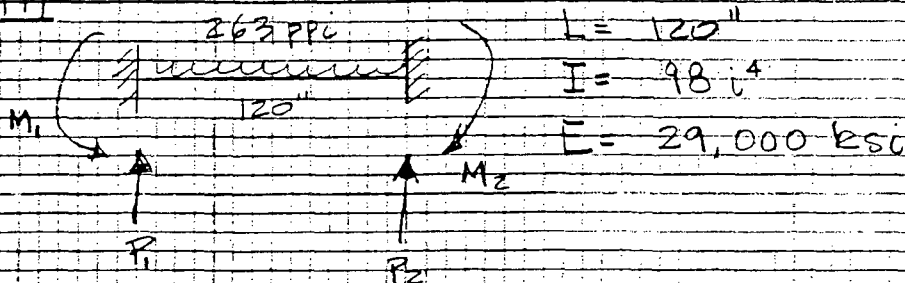
④ CALCULATION OF MAXIMUM MOMENT & SHEAR

$$W = 2,100 \text{ plf} = 175 \text{ ppf} \times 1.5 \text{ (Dead Load Factor)}$$



4.1 Equivalent Node Loads (FIXED END REACTIONS)

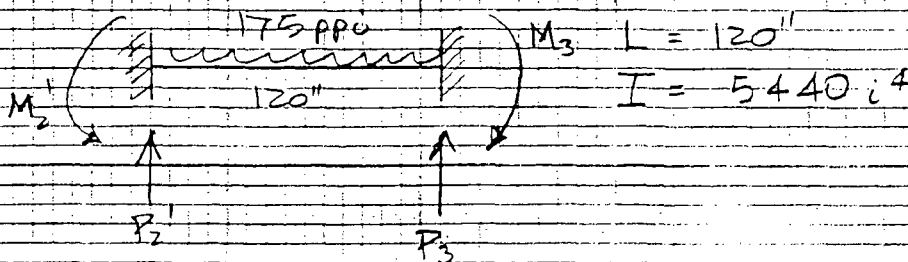
Member [1]



$$P_1 = P_2 = \frac{wL}{2} = \frac{263 \times 120}{2} = -15.8 \text{ kips}$$

$$M_{\max} = M_1 = M_2 = \frac{wL^2}{12} = \frac{263 \times (120)^2}{12} = -316 \text{ k-in}$$

Member [2]



$$P_2' = P_3 = \frac{wL}{2} = -15.8 \text{ kips}$$

$$M_2' = M_3 = -316 \text{ k-in}$$

4.2 Converting to Node Loads as per sign convention

MEMBER	NODE I	LOAD		NODE J	LOAD	
		Y	Z		Y	Z
1	①	-15.8	316	②	-15.8	+316
2	②	-15.8	316	③	-15.8	+316

5. RUNNING PROGRAM

DATA INPUT

Title Card

Number of Members, Number of Restraints, Number of Restrained Joints, Modulus of Elasticity

Member Properties

Member Number, Length in x-direction, Moment of Inertia about z-axis

....

Support Restraints

Node Number, Y-restraint, Z-restraint

.....

Loading Data

Number of Loaded Joints (If 0, skip), Number of Loaded Members

Member No., Equivalent fixed end reactions (Y1, Z1, Y2, Z2)

....

STABILITY RISK ASSESSMENT; CRITICAL SECTION

2 3 2 29000.0

MEMBER PROPERTIES

1 120.0 98.0

2 120.0 5440.0

SUPPORT RESTRAINTS

1 1 0

3 1 1

LOADING DATA

0 2

1 -16.0 -320.0 -16.0 320.0

2 -16.0 -320.0 -16.0 320.0

Program Used: BEAMS.FOR

Method: Matrix Analysis of Framed Structures (Stiffness Matrix Option)

All Units in Kips, in, Kips-in, and radians

STABILITY RISK ASSESSMENT; CRITICAL SECTION

NO OF MEMBERS = 2
 NO OF RESTRAINTS = 3
 NO OF RESTRAINED JOINTS = 2
 MODULUS OF ELASTICITY = 29000.000
 NUMBER OF JOINTS = 3
 DEGREES OF FREEDOM = 3

MEMBER PROPERTIES

1	120.000	98.000
2	120.000	5440.000

SUPPORT RESTRAINTS

1	1	0
3	1	1

LOADING DATA

NUMBER OF LOADED JOINTS = 0
 NUMBER OF LOADED MEMBERS = 2

ACTIONS AT ENDS OF RESTRAINED MEMBERS DUE TO LOAD

MEMBER	AML1	AML2	AML3	AML4
1	-0.1600E+02	-0.3200E+03	-0.1600E+02	0.3200E+03
2	-0.1600E+02	-0.3200E+03	-0.1600E+02	0.3200E+03

JOINT DISPLACEMENTS AND SUPPORT REACTIONS

JOINT	Y	Z	REACT-Y	REACT-Z
1	0.0000E+00	0.5714E-02	-0.1354E+02	0.0000E+00
2	0.1247E+00	-0.1554E-02	0.0000E+00	0.0000E+00
3	0.0000E+00	0.0000E+00	-0.5046E+02	0.4431E+04

ACTIONS AT END OF MEMBERS

MEMBER	AM1	AM2	AM3	AM4
1	-0.1354E+02	-0.3658E-04	-0.1846E+02	0.2957E+03
2	0.1846E+02	-0.2957E+03	-0.5046E+02	0.4431E+04

⑥ INTERPRETATION OF RESULTS

6.1 The Maximum Moment is 4.431 kip-ft
or 4,500 ft-lb

6.2 The Maximum Shear 50 kips

6.3 Assume an $F_y = 36$ ksi, reduced to 20 because of age (use as working stress)

∴ Maximum Displacements 0.12" @ Node 2
0.0057 rad @ Node 1

$$\text{ALLOWED VERT. DISP} = \frac{240''}{360} = 0.67'' > 0.12'' \text{ by factor of } 5$$

$$\frac{3.14}{180} = \frac{0.0057}{\lambda} \Rightarrow \lambda = \frac{180 \times 0.0057}{3.14} = 0.33^\circ$$

6.6 Factors of Safety under Static Conditions

Extreme Fiber Stress:

$$f = \frac{M_C}{I} = \frac{4,500 \text{ ft-lb} \times 96}{5440 \text{ in}^4} = 7.44$$

$$FS = \frac{f_b}{f} = \frac{20}{7.44} = \underline{\underline{2.69}}$$

Bolt Shear Stress

$$50 \text{ kips} \div 6 \text{ bolts} = 8.33 \text{ kips}$$

$$V = \frac{8.33 \text{ kip}}{\pi \left(\frac{0.63}{4} \right)^2} = \frac{8.33}{0.31} = 26.87$$

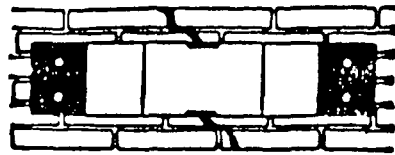
26.9 > 20 ⇒ BUILDING NOT SAFE
 UNDER 6 FEET OF
 SNOW

26.9 < 36 ⇒ IF BEAMS ARE IN
 GOOD CONDITION
 SIGNIFICANT DEFORMATION WILL
 OCCUR BEFORE FAILURE

ATTACHMENT 4

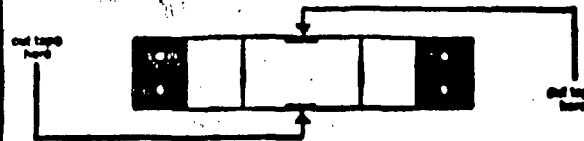
Fixing Instructions:-

1. Position Monitor over crack with vertical 0 line on scale parallel with the crack to be measured



2. Fix Monitor with screws or adhesive

3. Cut the transparent tape with a sharp knife



4. The degree of movement either side of the crack will now be measured as the two plates slide independently of one another

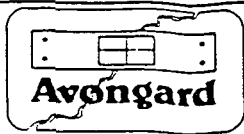
Avongard

2836 Osage, Waukegan, IL 60087

ORDER DIRECT
312-244-4179

817 244-4179
847

Score Indicator

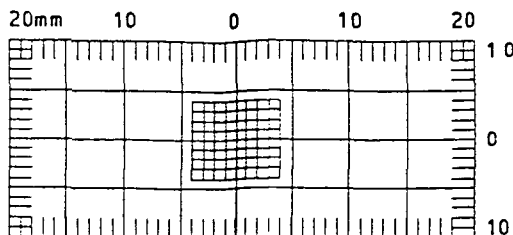


2836 Osage
Waukegan, IL 60087
Tel: 312-244-4179
Fax: 312-244-6685

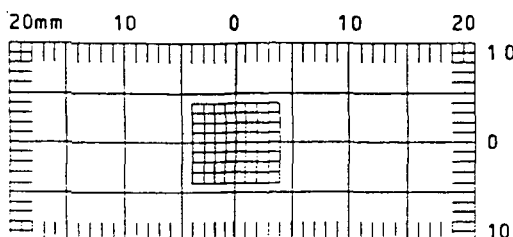
CALIBRATED CRACK MONITOR PROGRESS SHEET

Project: _____

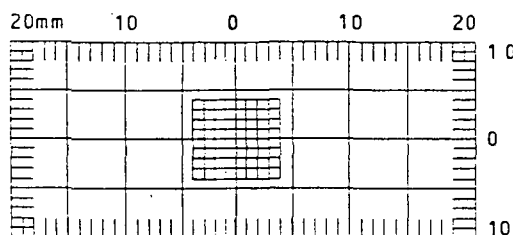
Location
of Monitor: _____



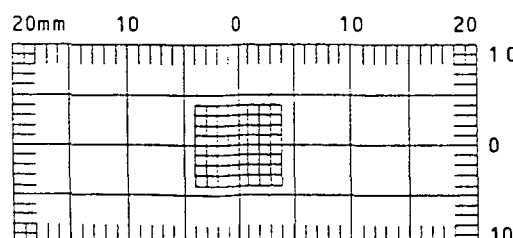
Date of Reading: _____



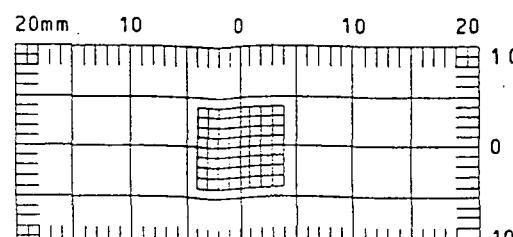
Date of Reading: _____



Date of Reading: _____

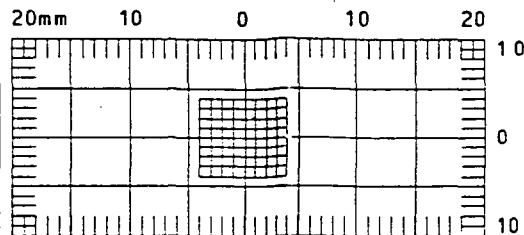


Date of Reading: _____

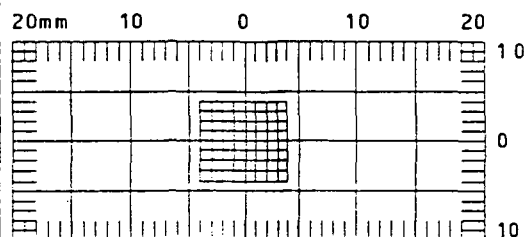


Date of Reading: _____

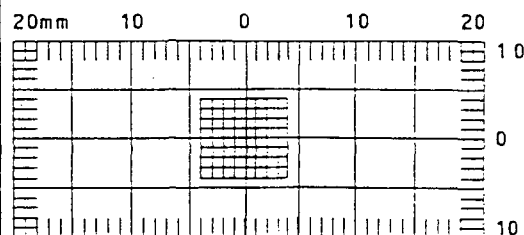
Notes



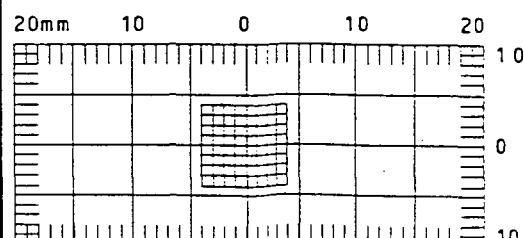
Date of Reading: _____



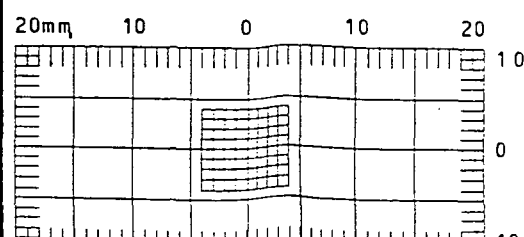
Date of Reading: _____



Date of Reading: _____



Date of Reading: _____



Date of Reading: _____

Coef. of Thermal Expansion 3.80×10^{-5} in/in/°F (6.84×10^{-5} mm/mm/°C)

L. Robert Kimball & Associates, Inc.

Test Pit Log

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP01	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/04/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 15:30			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand Brown Loose	50 ppm		
2		Plastic, Wood, Brick, Debris	500 ppm		
3		Sand, Ash, Cinders, Brick Structures			
4	TP01-1 @3.5' Grab	Brick Structure	1500 ppm	Analyses Requested: VOC; SV; TAL Metals, Pesticides & PCBs	
5		Ash and Cinders Drum Labels			
6		TD=5'			
7					
8					
9					
10					
11					
12					
Comments: North End of pit, red labels were encountered (oil & grease), also solidified caulking-type material.					

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP02	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/05/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 09:00			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand Brown Loose			
2		Layer of Plastic/Wood	10 ppm		
3		Sand w/Cinders, Stained Black, Bricks Bricks, Conc.			
4		Former Foundation w/Steel Pipe Running parallel to trench at 5.5'. Also Steel Box	52 ppm		
5		1'X1' in Brick Foundation.			
6		TD=5.5'			
7					
8					
9					
10					
11					
12					
Comments:					

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP03	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/05/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used: Bobcat Model 1100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 10:30			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand, Brown, Some Plastic &	5 ppm		
		Loose Bricks			
2					
3		Brick Structure, Possible Pipe Run in east half of Trench			
4			65 ppm		
5		Black Sand w/Cinders, Wood, Brick, former structures			
6					
7		TD=6'			
8					
9					
10					
11					
12					
Comments:					

Project Name: Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP04	
Inspector: A. Edward Sciulli		Ground Elevation:	Date: 08/05/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 14:00		
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Orange Sand, Loose, Damp, Lg. Conc.		
2		Chunks, Drum Bung in top 2', Lg Conc. Blocks	200 ppm	
3		Redish Brown Debris, Brick, Conc.	200 ppm	
4		TD=3.5'		
5				
6				
7				
8				
9				
10				
11				
12				
Comments:				

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP05
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/05/97
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 14:45		
Weather: Hard Rain				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1				
2		Sand, Brown, Some Blk. Staining, Debris, Conc., Structure Along North End of Pit		
3				
4	TP05-1@3-4' Grab	@ end of Pit Purple Stained Soil		Analyses Requested: VOC, SV, TAL Metals, Pest./PCBs
5		TD=4'		
6				
7				
8				
9				
10				
11				
12				
Comments: Water entering pit from surface runoff due to hard rain.				

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP06
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/06/97
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 10:00		
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Brown, Loose Gravel Layer of Debris @ 1'	50 ppm	
2				
3	TP06-1@2-3' Grab	Sand, Blk. ash, Cinders, Brick and Conc. Frgs., Pipe Run Running North/South in Center of Pit	1000 ppm	Analysis Requested: VOC; SV; TAL Metals; Pest./PCBs
4				
5				
6		TD=5'		
7				
8				
9				
10				
11				
12				
Comments:				

Project Name:		Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP07	
Inspector:		A. Edward Sciulli		Ground Elevation:		Date: 08/06/97	
Location:		1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.):		+/- 5.25'		Time:		15:00	
Weather:		Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks			
1		Sand, Brown	250 ppm				
2							
3		Plastic, Wood Brick, Slag, Blk. Cinders	250 ppm				
4		Slag, Cinders, Lt. Brown to Tan	500 ppm				
5							
6		Sand, Brown, Loose	2000 ppm				
7		TD=6'					
8							
9							
10							
11							
12							
Comments:							

Project Name: Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP08	
Inspector: A. Edward Sciulli		Ground Elevation:	Date: 08/06/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 15:00		
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Brown, Loose, Pipe Run or Foundation Encountered @ East	100 ppm	
2		End of Pit		
3		Ash, Cinders, Brick, Conc. Rubble, Blk. Slag, Some Grease & MEK Labels	1500 ppm	
4		Encountered, Gloves & Boots		
5		Concrete Slab		
6		TD=4.5'		
7				
8				
9				
10				
11				
12				
Comments:				

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP09
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/07/97
Location:		1542 S. Broadway, Camden, NJ	Equipment Used Bobcat Model 100 Trac-Excav.	
Depth To Groundwater (ft.):		+/- 5.25'	Time:	09:00
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Brown, Loose Pipe Run @ 1'	100 ppm	
2				
3		Ash, Cinders, Brick w/ Purple Staining, Some Drum Rings @ 3', Condiut Pipe	1500 ppm	
4	TP09-1@3-4' Grab	Running East-Westencountered, Conc. Slab @ 4'		Analyses Requested: VOC, SV, TAL Metals, Pest/PCBs
5		TD=4'		
6				
7				
8				
9				
10				
11				
12				
Comments:				

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP10	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/07/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 11:00			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand, Brown, Gravelly			
2		Sand, Ash, Cinders, Grey, Gravelly, Layer of Plastic Beneath Ash. 2" Metal Pipe			
3		in Center of Pit			
4		Hole Caving below 3'			
5		Sand, Black, Cinders, Ash, Strong Odor Debris and Metal/ Scrap	2000 ppm		
6		Water Entering Pit - Sheen			
7		TD=5.5'			
8					
9					
10					
11					
12					
Comments:					

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP11	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/07/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 14:30			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand, Brown to Orangish Brown, Loose			
2			0.0 ppm		
3		Sand with Green Streaks	10 ppm		
4		2 Tires, Boots, Gloves, Several Empty			
5		Drum Liners, Brick, Concrete Debris	45 ppm		
6		TD=5.5'			
7					
8					
9					
10					
11					
12					
Comments: Drum liners produced no FID readings. Liners were removed from excavation.					

L. Robert Kimball & Associates, Inc.

Test Pit Log

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP12	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/07/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.): +/- 5.25'		Time: 16:20			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Sand, Orangish Brown, Loose	10 ppm		
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
Comments:					

L. Robert Kimball & Associates, Inc.

Test Pit Log

Project Name: Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP13
Inspector: A. Edward Sciulli		Ground Elevation:	Date: 08/08/97
Location: 1542 S. Broadway, Camden, NJ		Equipment Used: Bobcat Model 1100 Trac-Excav.	
Depth To Groundwater (ft.): +/- 5.25'		Time: 08:30	
Weather: Sunny, Hot, 90's			

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Brown to Orangish Brown	20 ppm	
2		Ash, Cinders, Metallic Slag, Some Gravel	45 ppm	
3				
4				
5		Silt, Some Gray Clay, Cohesive	10 ppm	
6				
7				
8				
9				
10				
11				
12				

Comments:

Very few bricks and concrete pieces. Crushed drum and drum pcs. encountered @ 2'.

L. Robert Kimball & Associates, Inc.

Test Pit Log

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP14
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/08/97
Location: 1542 S. Broadway, Camden, NJ		Equipment Used: Bobcat Model 1100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 10:15		
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Brown Sand, Debris		
2				
3		Slag, Layer of gray and black Brick		
4	TP14-1 @3-4' Grab	Slag, 3" dia. pipe @ 3.5' in south end of pit		
5			1500 ppm	
6		Conc. footing, slab encountered in north end of pit, also in east face		
7		TD=5.5'		
8				
9				
10				
11				
12				
Comments:				

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP15
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/08/97
Location:		1542 S. Broadway, Camden, NJ	Equipment Used: Bobcat Model 1100 Trac-Excav.	
Depth To Groundwater (ft.):		+/- 5.25'	Time:	12:00
Weather:		Sunny, Hot, 90's		

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Gravel, brn., very hard rock at surface, dk. purple in color, brick, construction rubble, Foundation at start of trench		
2				
3				
4		Alternating gray and black ash cinders, slag turning to sand @ 6', brown with streaks of green		
5		2" dia. pipe @ 4' through pit		
6				
7		TD=6'		
8				
9				
10				
11				
12				

Comments:

L. Robert Kimball & Associates, Inc.

Test Pit Log

Project Name: Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP16
Inspector: A. Edward Sciulli		Ground Elevation:	Date: 08/11/97
Location: 1542 S. Broadway, Camden, NJ		Equipment Used: Bobcat Model 1100 Trac-Excav.	
Depth To Groundwater (ft.): +/- 5.25'		Time: 09:00	
Weather: Sunny, Hot, 90's			

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1			400 ppm	
2		Sand, brown to dk. brown, some brick frags, gravel		
3				
4				
5		Alternating layers of black and gray slag, ash, cinders, Brick and wood	3000 ppm	
6		2" dia. pipe @ 3.5' mid-point of trench runs north-south in pit		
7		TD=6'		
8				
9				
10				
11				
12				

Comments:

Project Name:		Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP17
Inspector:		A. Edward Sciulli		Ground Elevation:	Date: 08/11/97
Location:		1542 S. Broadway, Camden, NJ		Equipment Used: Bobcat Model 1100 Trac-Excav.	
Depth To Groundwater (ft.):		+/- 5.25'		Time:	10:30
Weather:		Sunny, Hot, 90's			

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, brown, gravel, some brick fragment	400 ppm	
2		Alternating grey and black slag and cinders@2.0'. Crushed drum encountered west 1/3 of trench. No other metal.	>2000 ppm	
3				
4	TP17-1			Analysis requested: CLP SV, CLP
5				VOA, PEST/PCB, TAL CN
6		Sand, brown with green tint	200ppm	
7		TD = 6.0 FT		
8				
9				
10				
11				
12				

Comments:

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP18
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/11/97
Location:		1542 S. Broadway, Camden, NJ	Equipment Used Bobcat Model 100 Trac-Excav.	
Depth To Groundwater (ft.):		+/- 5.25'	Time:	14:00
Weather: Sunny, Hot 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1				
2		Sand, brown, some brick gravel		At 2.0 FT, Drum lid encountered
3		Alternating grey and black ash and cinder slag		
4	TP18-1			At 4.0 FT, 2 pipes encountered
5				1 - 8 IN diam., 1- 3 IN diam. running N-S through pit. Located directly under EM
6		TD = 5.5 FT		Anomaly Analysis requested: CLP VOA, CLP SV,
7				TAL CN, PEST/PCB
8				
9				
10				
11				
12				
Comments:				

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP19
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/12/97
Location:		1542 S. Broadway, Camden, NJ	Equipment Used Bobcat Model 100 Trac-Excav.	
Depth To Groundwater (ft.):		+/- 5.25'	Time:	08:00
Weather:		Sunny, Hot, 90's		
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand and silt, brown, loose, w/ roots, organic matter and wood	50 ppm	
2		Alternating grey and black ash, cinders, slag, roots evident	500 ppm	
3				
4				At 4.0 FT, 4 IN diam. pipe running N-S // to the perimeter fence
5		TD = 4.5 FT		
6				
7				
8				
9				
10				
11				
12				
Comments:				

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP20
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/12/97
Location:		1542 S. Broadway, Camden, NJ		
Equipment Used		Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.):		+/- 5.25'	Time:	09:30
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand and silt, brown, hard, some pockets of green clay, brick and concrete		
2		fragments, foundation (brick and concrete) @ S end		
3		Black cinders, slag, ash, hard		
4	TP20-1			3.5-4.5 FT requested analysis: CLP VOA, CLP SV, TAL CN, PEST/PCB
5		White granular clayey material, ash and cinder as above, more loose, wet at 6.5'		
6				
7				
8				
9				
10				
11				
12				
Comments: 				

Project Name:		Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP21	
Inspector:		A. Edward Sciulli		Ground Elevation:		Date: 08/12/97	
Location:		1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.):		+/- 5.25'		Time:		11:00	
Weather:		Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks			
1		Sand & gravel, brown, hard, some brick	100 ppm				
2		Alternating grey and black ash, cinder, slag	>2000 ppm				
3							
4	TP21-1 TP21-2			3.5' - Plastic buckets encountered, also several drum liners w/ small amount of			
5				liquid, drum rings, particle fiber drums various metal @ tree trunk			
6				4.0' - White powder in bucket from drum liner, slight blue yellow tint			
7		TD - 5.0 FT		3.5-4.5' - analysis requested: CLP VOA, CLP SV, TAL CN, PEST/ PCB, RCRA			
8				Compatability			
9				4.0-5.0 - analysis requested: TCL VOA, CLP SV, TAL CN, PEST/PCB			
10							
11							
12							
Comments:							

Project Name:		Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: TP22
Inspector:		A. Edward Sciulli		Ground Elevation:	Date: 08/13/97
Location:		1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excavator	
Depth To Groundwater (ft.):		+/- 5.25'		Time:	09:00
Weather:		Sunny, Hot, 90's			

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, brown, loose, some small metal pieces	50 ppm	
2				
3		Black ash, cinder, slag, brick structure length of pit encountered @ 3.0'	500 ppm	
4		Black cinders and slag as above, grading to brown sand @ 5.5'		
5				
6				
7				
8				
9				
10				
11				
12				

TD = 5.5 FT

Comments:

Test Pit Log

Project Name:		Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: TP23	
Inspector:		A. Edward Sciulli		Ground Elevation:		Date: 08/13/97	
Location:		1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.			
Depth To Groundwater (ft.):		+/- 5.25'		Time:		10:30	
Weather:		Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks			
1		Sand, brown, w/ silt, loose					
2		Black cinders, slag, ash, strong odor, wet	>2000 ppm				
3		at 5.5', green buckets encountered @					
4		3.5'. Extend to E end of pit, some wood,					
5		piece of RR rail encountered. Some					
6		drum liner material @ W end of pit.					
7							
8							
9							
10							
11							
12							
Comments:							

Project Name:		Martin Aaron RI	Project No.: 96-1322-0123	Pit No.: TP24
Inspector:		A. Edward Sciulli	Ground Elevation:	Date: 08/13/97
Location:		1542 S. Broadway, Camden, NJ	Equipment Used Bobcat Model 100 Trac-Excavator	
Depth To Groundwater (ft.):		+/- 5.25'	Time:	12:00
Weather:		Sunny, Hot, 90's		

Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, layer of black and grey ash, cinders, slag, some brick, wood	>1000 ppm	
2				
3	TP24-1			3.0-4.0' - Analysis requested: CLP VOA, CLP SV, TAL CN, PEST/PCB
4				@ 4.0' - Concrete slab the length of pit. 8 to 10" vertical pipe near NW corner of pit
5		TD = 4.0 FT		Top is just below surface concrete Possible conduit pipe on south wall of pit
6				across from large pipe.
7				
8				
9				
10				
11				
12				

Comments:

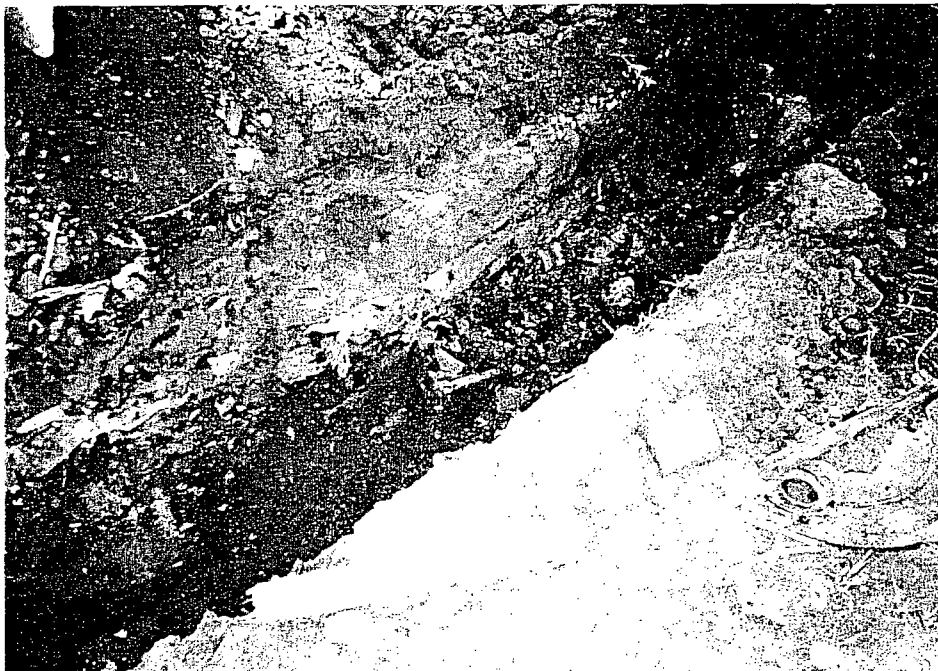
L. Robert Kimball & Associates, Inc.

Test Pit Log

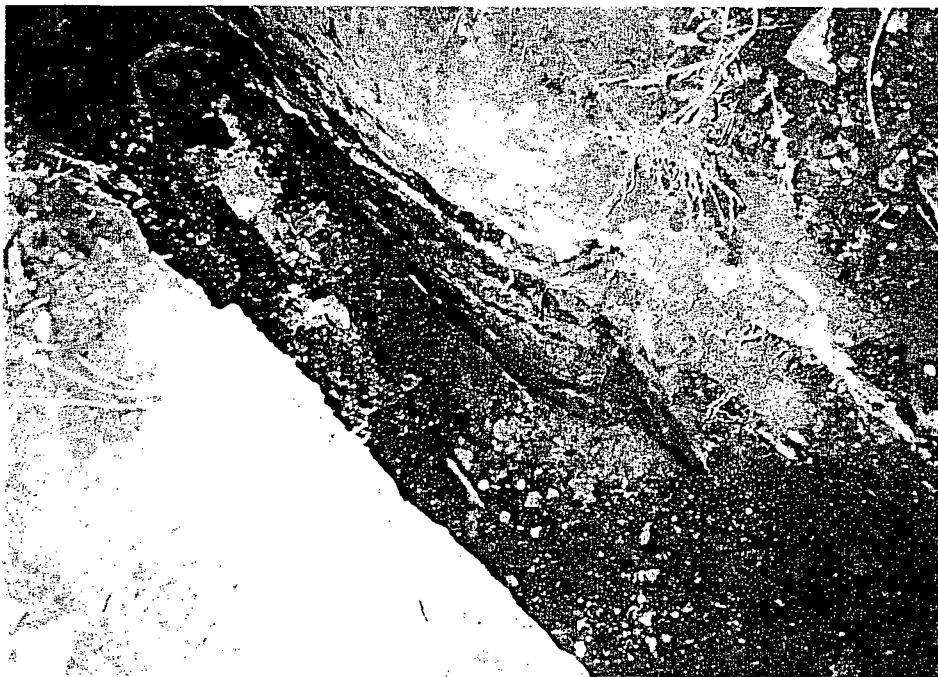
Project Name: Martin Aaron RI		Project No.: 96-1322-0123	Pit No.: SE01	
Inspector: A. Edward Sciulli		Ground Elevation:	Date: 08/05/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excav.		
Depth To Groundwater (ft.): +/- 5.25'		Time: 12:15		
Weather: Sunny, Hot, 90's				
Depth (feet)	Sample No. and Type	Description	FID	Remarks
1		Sand, Brown, Some Brick	200 ppm	
2		Pipe @ 2'		
3		Black Cinders, Ash, Some Brick, Conc.,	1500 ppm	
4	SE01-1 + SE01-2*	Rubble, Strong Odor		Analyses Requested: VOC, SV, TAL Metals,
5	Grab @ 2-3' below pipe	Sand, Brown w/Greenish Lenses, Stained	1500 ppm	Pest./PCBs
6		Black, Strong Odor - Water @ 6' From Below Basin		
7		TD=6'		
8				
9				
10				
11				
12				
Comments: * Sample plus duplicate.				

Project Name: Martin Aaron RI		Project No.: 96-1322-0123		Pit No.: SE03	
Inspector: A. Edward Sciulli		Ground Elevation:		Date: 08/12/97	
Location: 1542 S. Broadway, Camden, NJ		Equipment Used Bobcat Model 100 Trac-Excavator			
Depth To Groundwater (ft.): +/- 5.25'		Time: 14:15			
Weather: Sunny, Hot, 90's					
Depth (feet)	Sample No. and Type	Description	FID	Remarks	
1		Silt and sand, brown, moist, abundant. brick, concrete and other rubble	200 ppm		
2					
3					
4	SEO3-1			4.0-5.0 at inlet pipe, analysis requested:	
5				CLP VOA, CLP SV, TAL CN, PEST/PCB	
6				White powder sample reacting w/ methanol	
7					
8					
9					
10					
11					
12					
Comment Explored inlet pipe to Rhodes basin and west wall of basin. Top of basin is brick, some collapsing Abandon pit @ 4.0'					

Martin Aaron Site RI/RAA

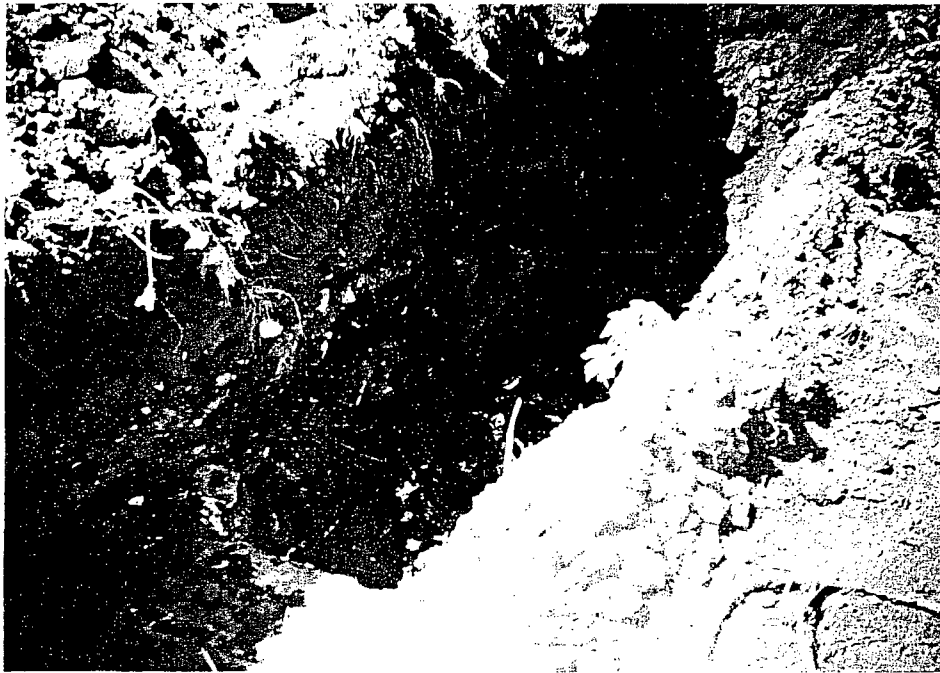


Test Pit #TP01
Showing soils and brick structures encountered.



Test Pit #TP02
Showing soils, brick, concrete structure and pipe encountered.

Martin Aaron Site RI/RAA



Test Pit #TP03

Showing brick and concrete structure and possible pipe-run in foreground.



Test Pit #SE01

Showing soil adjacent to WADCO sewer basin.

Martin Aaron Site RI/RAA



Test Pit #SE01
Showing effluent pipe of Basin #2.



Test Pit #SE01
Showing stained soil from basin excavation.

Martin Aaron Site RI/RAA

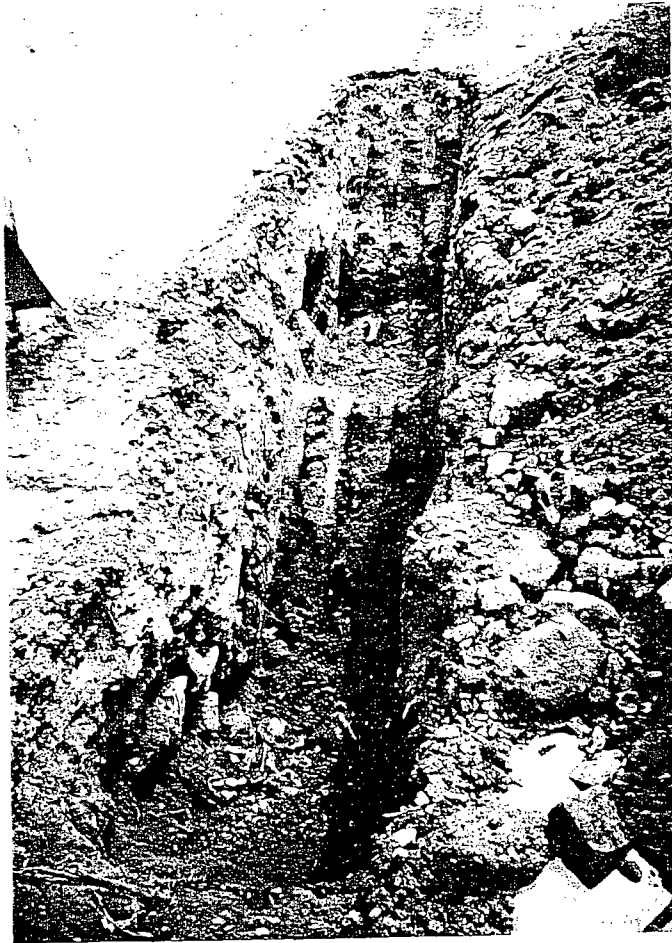


Test Pit #TP04
Showing soil and debris encountered.



Test Pit #TP05
Showing soil (stained purple) and debris encountered.

Martin Aaron Site RI/RAA



Test Pit #TP06

Showing soil and subsurface concrete structure (possible pipe run).



Test Pit #TP07

Showing layered fill encountered.

300393

Martin Aaron Site RI/RAA



Test Pit #TP08
Showing soil and debris encountered.



Test Pit #TP09
Showing soil and debris. Pipe run West end of pit.

Martin Aaron Site RI/RAA



Test Pit #TP10

Showing groundwater encountered, concrete footer at East end of pit.

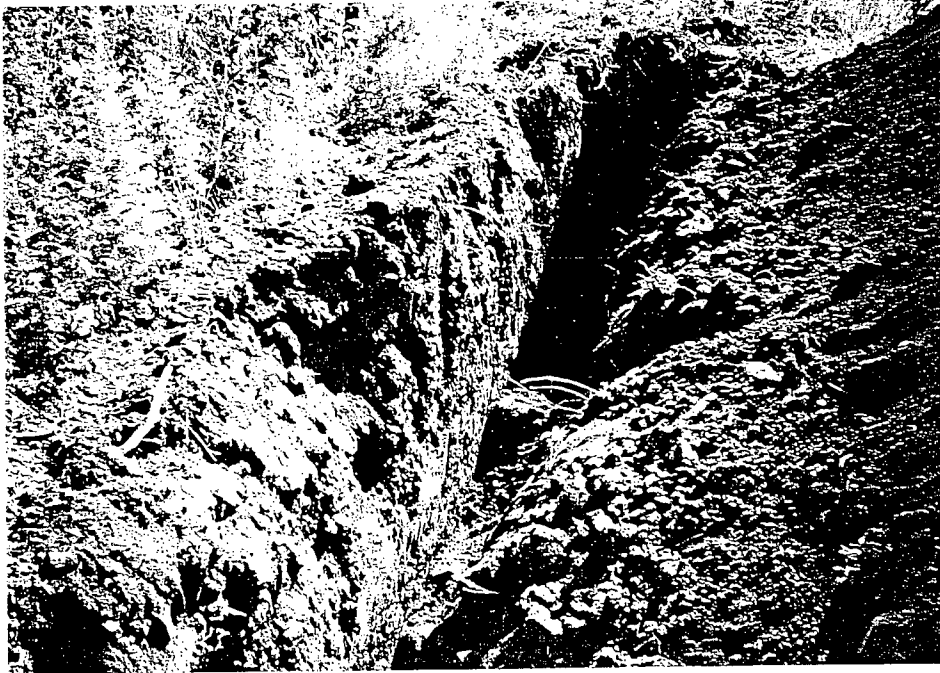


Test Pit #TP11

Showing drum liners encountered.

300395

Martin Aaron Site RI/RAA



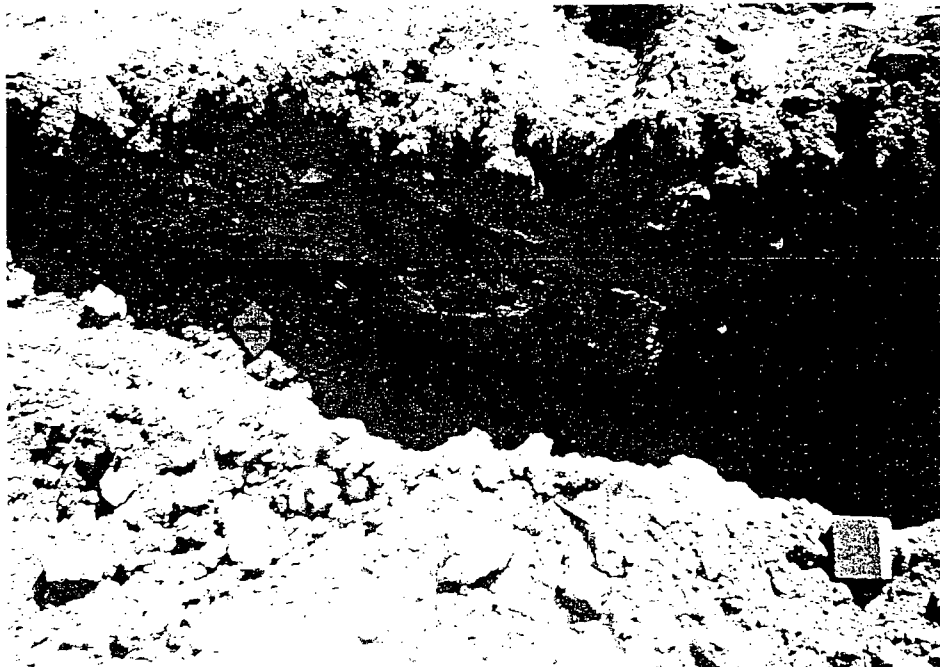
Test Pit #TP12
Showing soil encountered.



Test Pit #TP13
Showing soil encountered.

300396

Martin Aaron Site RI/RAA



Test Pit #TP14
Showing soil and concrete structure encountered.



Test Pit #TP14
Showing soil, pipe and drum rings encountered.

Martin Aaron Site RI/RAA



Test Pit #TP15
Showing layered fill and pipe encountered.

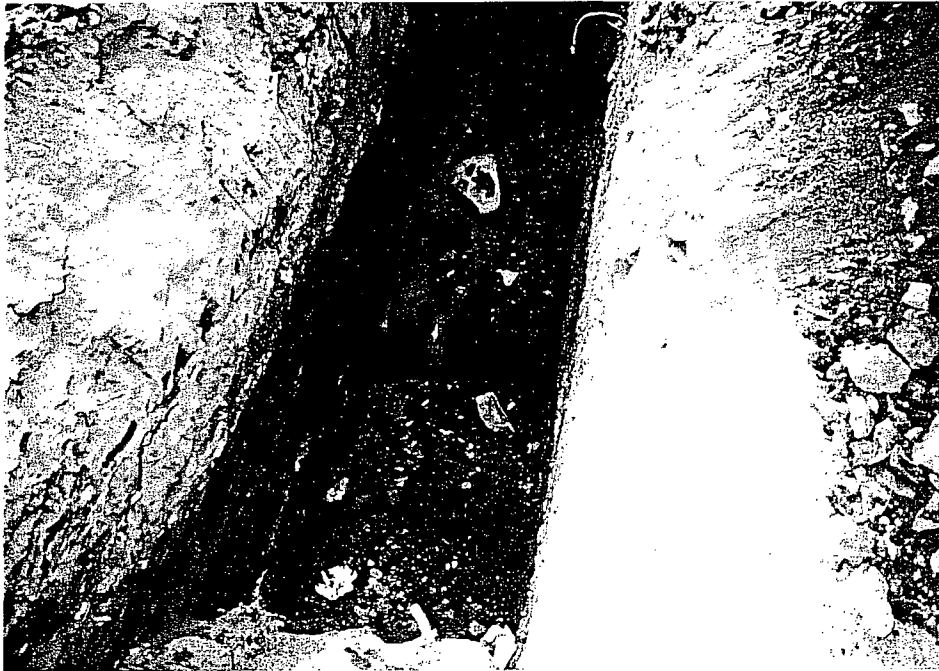


Test Pit #TP16
Showing soil and pipe encountered.



Test Pit #TP17
Showing soil and layered fill encountered.

Martin Aaron Site RI/RAA



Test Pit #TP18

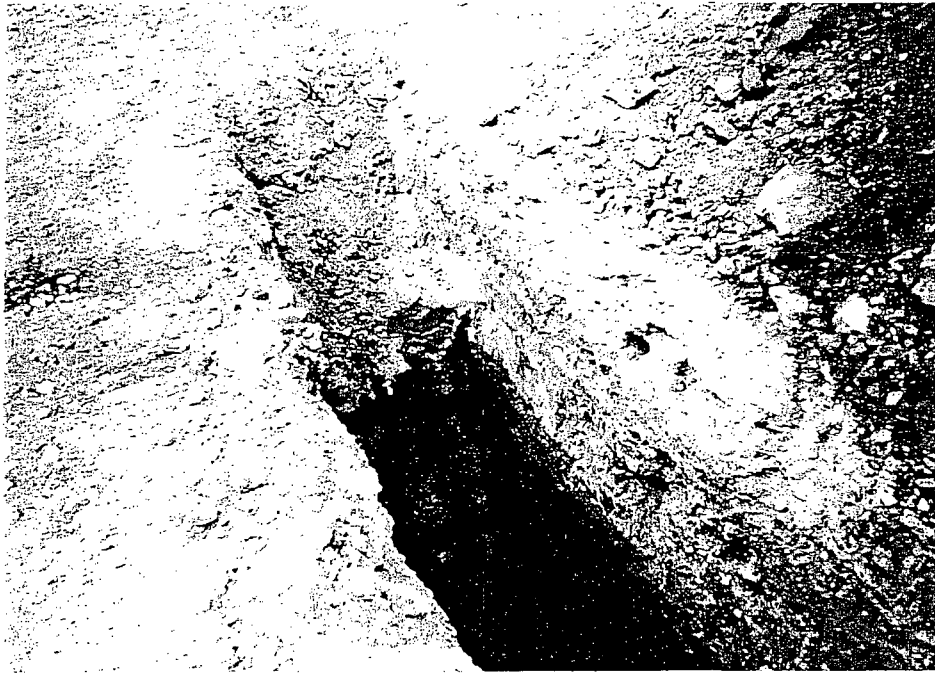
Showing soil; approximate 3" diameter and 8" diameter pipes encountered.



Test Pit #TP19

Showing soil and pipe encountered.

Martin Aaron Site RI/RAA



Test Pit #TP20

Showing layered fill, brick structure. South end of pit encountered.



Test Pit #TP21

Showing soil and debris encountered.

Martin Aaron Site RI/RAA

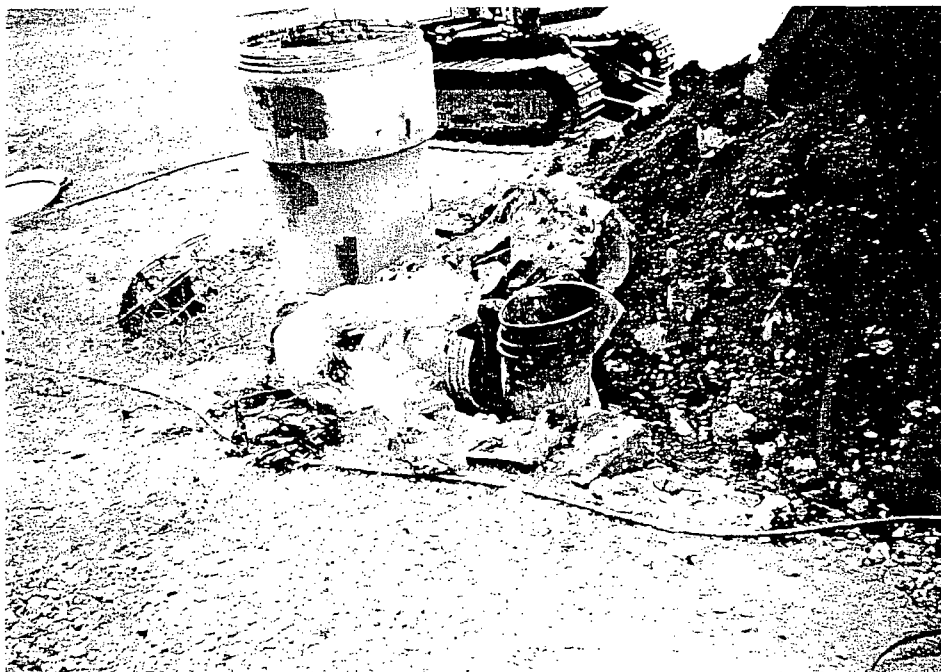


Test Pit #TP21
Showing white solid substance encountered.



Test Pit #TP21
Showing drum rings, liners and skimmer belts encountered.

Martin Aaron Site RI/RAA

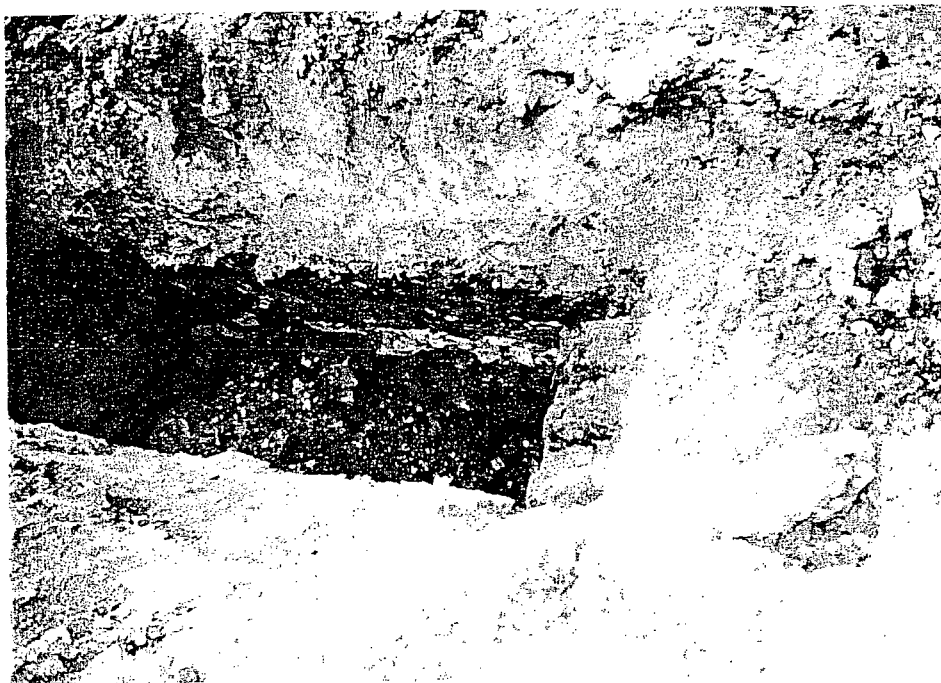


Test Pit #TP21
Showing drum liners and buckets encountered.



Test Pit #SE03
Showing soil and West wall of Rhodes basin encounter.

Martin Aaron Site RI/RAA



Test Pit #22
Showing soil and brick structure encountered.



Test Pit #TP23 - Showing stained soil
and green (5 gal.) containers encountered.



Test Pit #TP24 - Showing soil; approx.
8" diameter. Vertical pipe encountered.

MONITORING WELL INSTALLATION SKETCH

MONITORING WELL NUMBER	MW1S
WELL PERMIT NUMBER	31-51432
DATE OF WELL INSTALLATION	07/08/97
DATE OF WELL DEVELOPMENT	07/11/97

TOP OF FLUSH-MOUNT COVER

WELL CAP w/LOCK

- DIMENSIONS OF CONCRETE PAD

- GROUND SURFACE

24" DIA.

SOIL

10.19 0.0

9.94

1.0'

FILL MATERIAL

2.5'

3.0'

5.94 4.0'

SAND

14.0'

-3.81 14.0'

-3.81 14.0'

- TOP OF CASING

TYPE OF SURFACE SEAL

I.D. OF RISER
TYPE OF RISER

TYPE OF BACKFILL
EMPLACEMENT METHOD

BOREHOLE DIAMETER

TOP OF FINE SAND

TYPE OF FINE SAND

TOP OF SAND PACK

TOP OF SCREEN

I.D. OF SCREEN
SIZE OF SCREEN OPENING
TYPE OF SCREEN

SIZE OF FILTER SAND
EMPLACEMENT METHOD

BOTTOM OF SCREEN

BOTTOM OF WELL

- BOTTOM OF BOREHOLE

CONCRETE

4.0"

PVC

GROUT

POURED

8.0"

#00 MORIE

4.0"

0.01

PVC

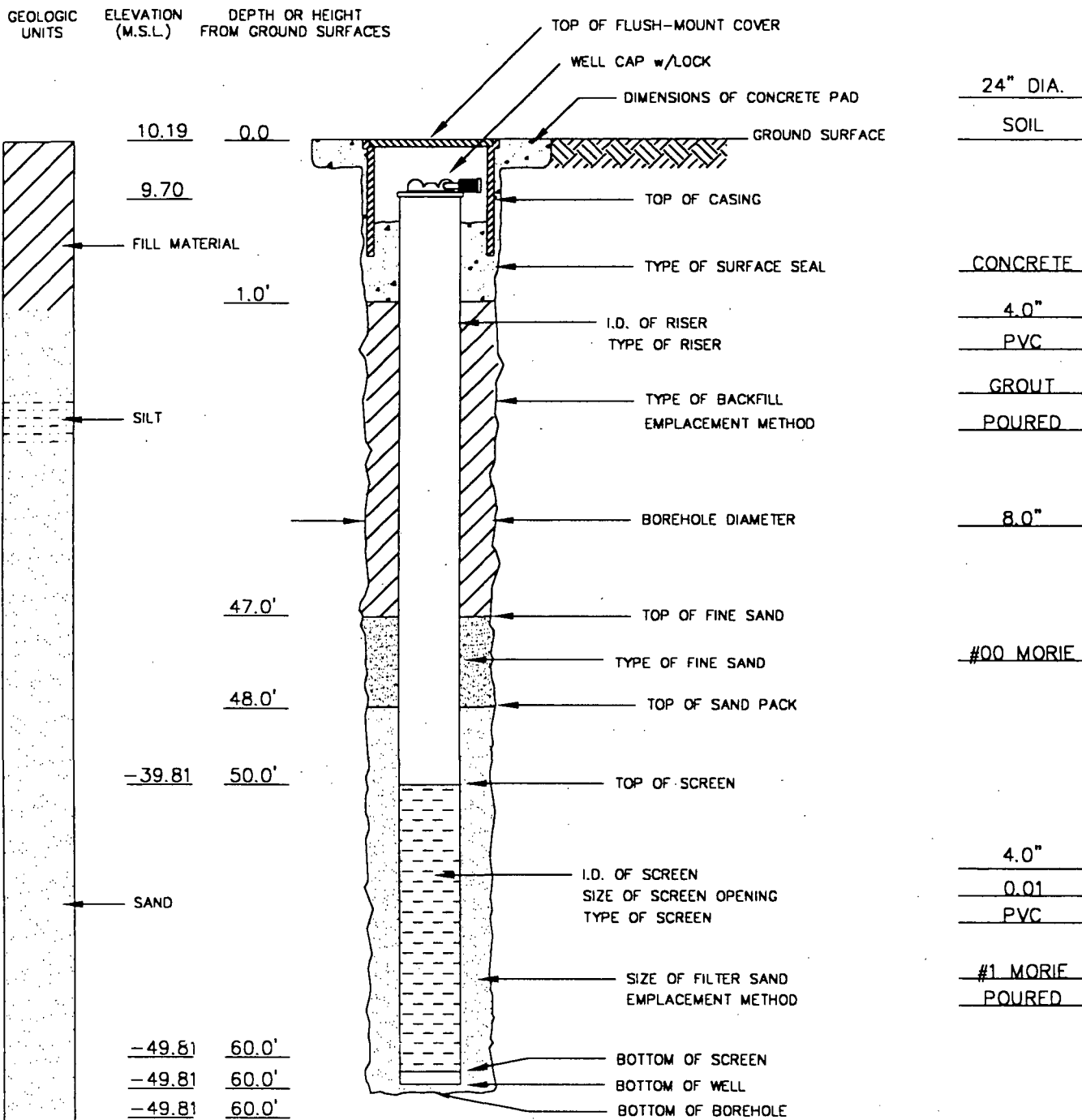
#1 MORIE

POURED

DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	9.01	5.90	6.48							
ELEVATION	0.93	4.04	3.46							

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON RI/RAA	MONITORING WELL NUMBER	MW1M
DRILLING COMPANY:	JAMES C. ANDERSON ASSOCIATES, INC.	WELL PERMIT NUMBER	31-51433
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	06/26/97
INSPECTOR:	A. EDWARD SCIULLI	DATE OF WELL DEVELOPMENT	07/03/97



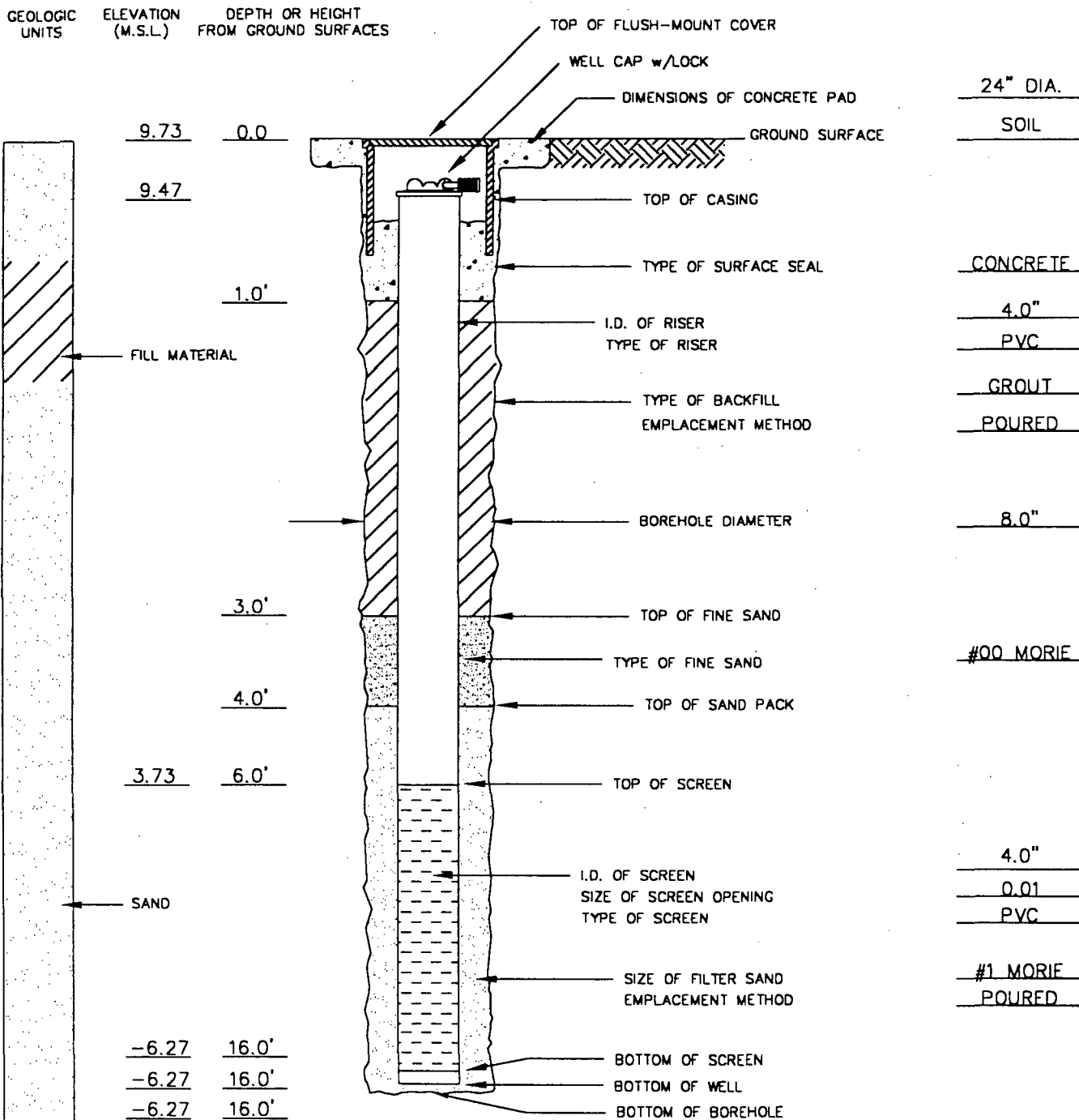
WATER LEVEL MEASUREMENTS

DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	13.92	13.83	14.34							
ELEVATION	-4.22	-4.13	-4.64							



MONITORING WELL INSTALLATION SKETCH

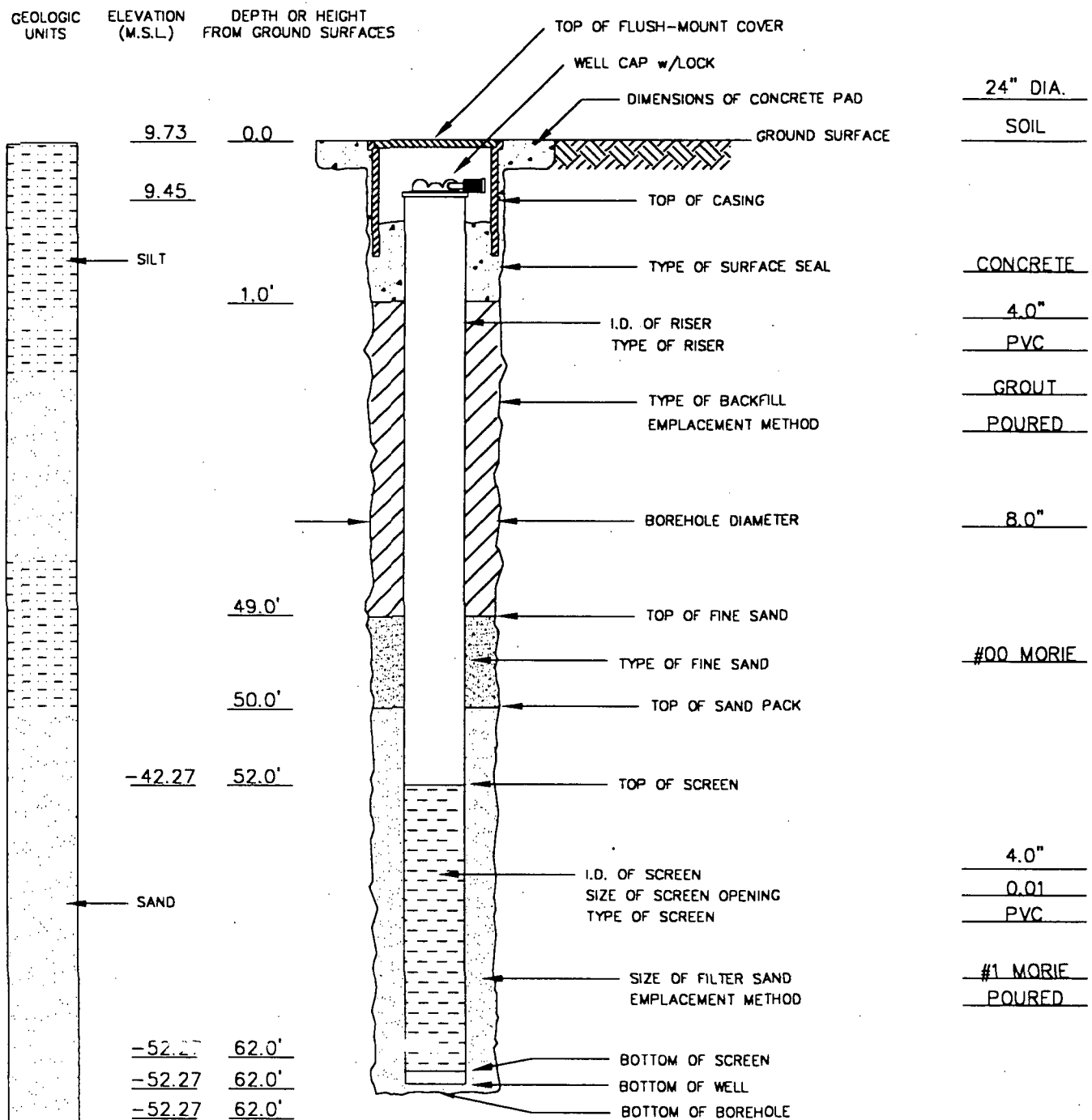
PROJECT:	MARTIN AARON RI/RAA	MONITORING WELL NUMBER	MW2S
DRILLING COMPANY:	JAMES C. ANDERSON ASSOCIATES, INC.	WELL PERMIT NUMBER	31-51435
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	07/08/97
INSPECTOR:	WILLIAM E. STENGER	DATE OF WELL DEVELOPMENT	07/11/97



WATER LEVEL MEASUREMENTS

DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	13.68	13.65	14.20							
ELEVATION	-4.21	-4.18	-4.37							

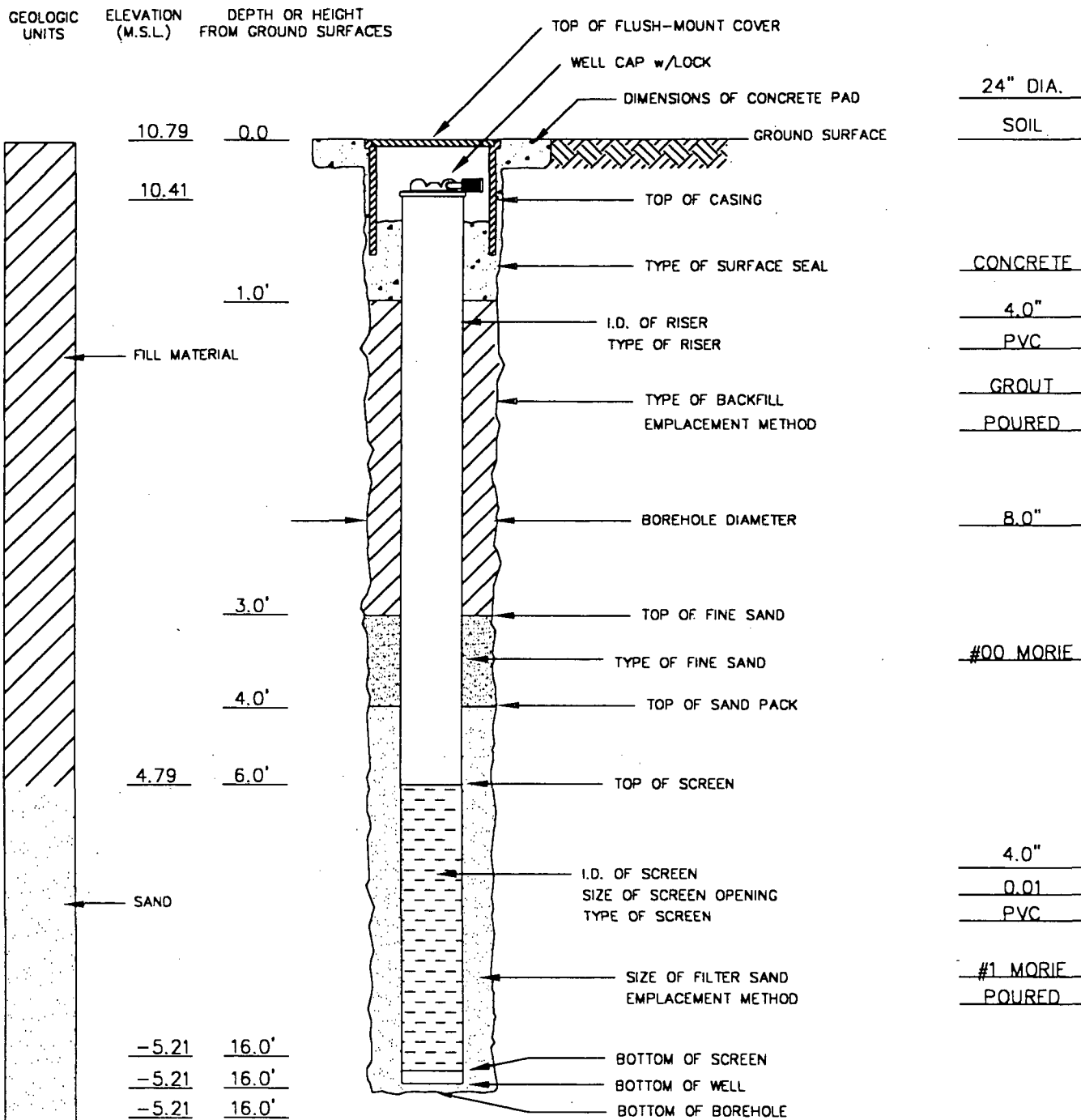
PROJECT:	MARTIN AARON RI/RAA	MONITORING WELL NUMBER	MW2M
DRILLING COMPANY:	JAMES C. ANDERSON ASSOCIATES, INC.	WELL PERMIT NUMBER	31-51436
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	06/27/97
INSPECTOR:	A. EDWARD SCIULLI	DATE OF WELL DEVELOPMENT	07/03/97



DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	14.13	14.12	14.43							
ELEVATION	-4.68	-4.67	-4.98							

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON RI/RAA	MONITORING WELL NUMBER	MW3S
DRILLING COMPANY:	JAMES C. ANDERSON ASSOCIATES, INC.	WELL PERMIT NUMBER	31-51428
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	07/07/97
INSPECTOR:	WILLIAM E. STENGER	DATE OF WELL DEVELOPMENT	07/11/97

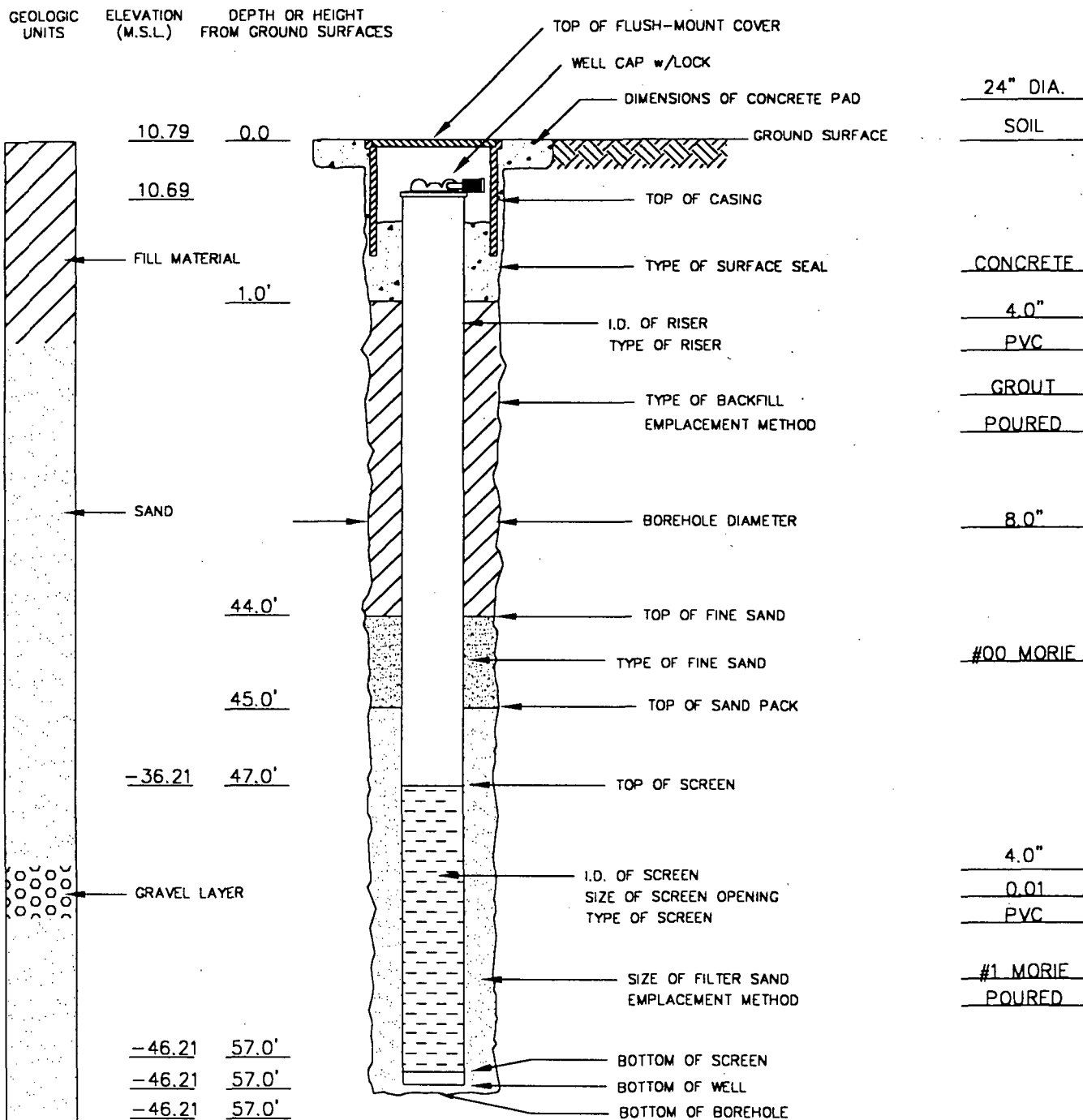


WATER LEVEL MEASUREMENTS

DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	11.65	11.64	12.52							
ELEVATION	-1.24	-1.23	-2.11							

MONITORING WELL INSTALLATION SKETCH

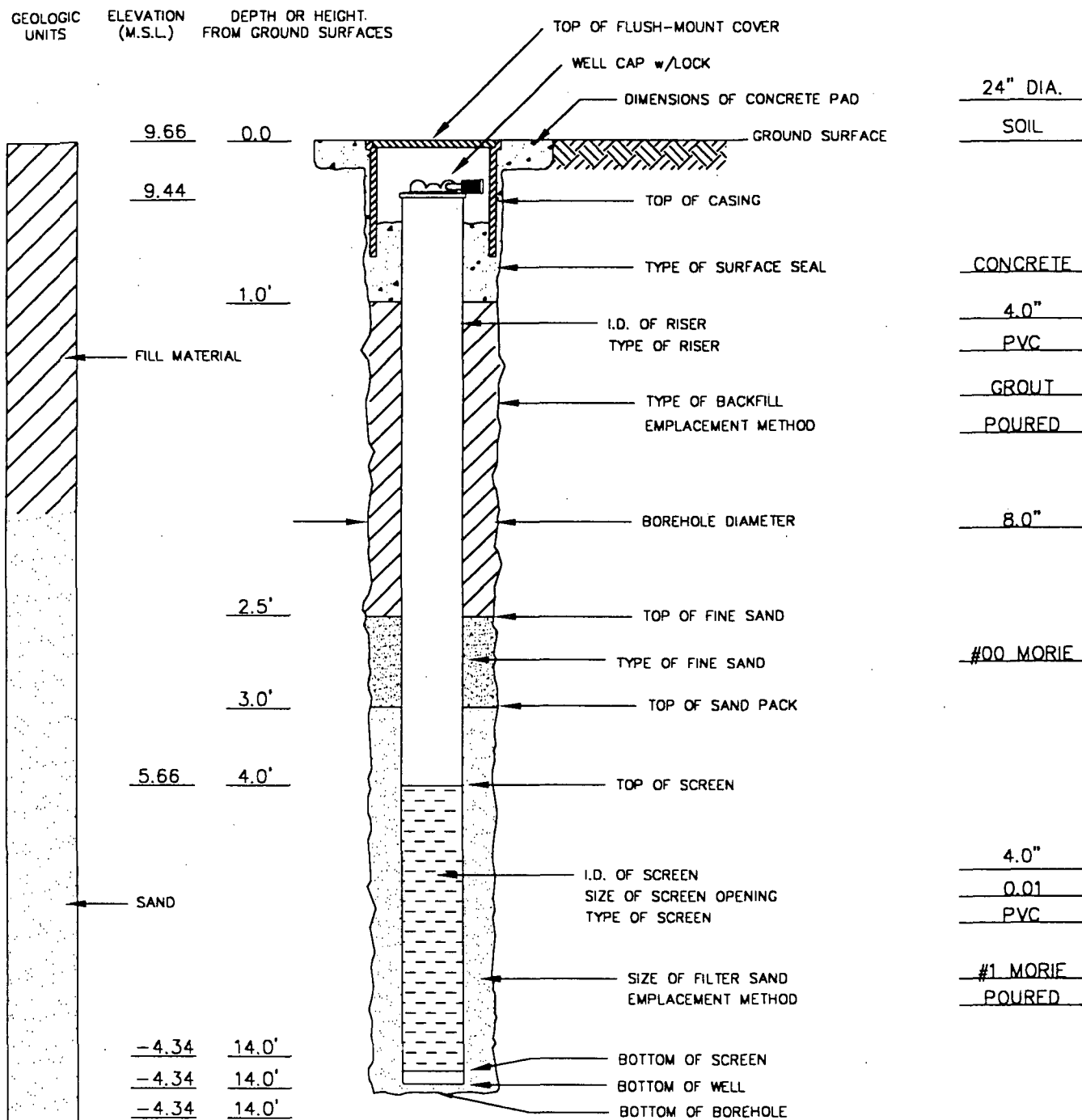
PROJECT:	MARTIN AARON RI/RAA	MONITORING WELL NUMBER	MW3M
DRILLING COMPANY:	JAMES C. ANDERSON ASSOCIATES, INC.	WELL PERMIT NUMBER	31-51429
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	07/02/97
INSPECTOR:	WILLIAM E. STENGER	DATE OF WELL DEVELOPMENT	07/03/97



WATER LEVEL MEASUREMENTS

DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	15.36	15.38	15.71							
ELEVATION	-4.67	-4.69	-5.02							

PROJECT:	<u>MARTIN AARON RI/RAA</u>	MONITORING WELL NUMBER	<u>MW4S</u>
DRILLING COMPANY:	<u>JAMES C. ANDERSON ASSOCIATES, INC.</u>	WELL PERMIT NUMBER	<u>31-51438</u>
DRILLER:	<u>JOHN URBAN</u>	DATE OF WELL INSTALLATION	<u>07/08/97</u>
INSPECTOR:	<u>WILLIAM E. STENGER</u>	DATE OF WELL DEVELOPMENT	<u>07/11/97</u>

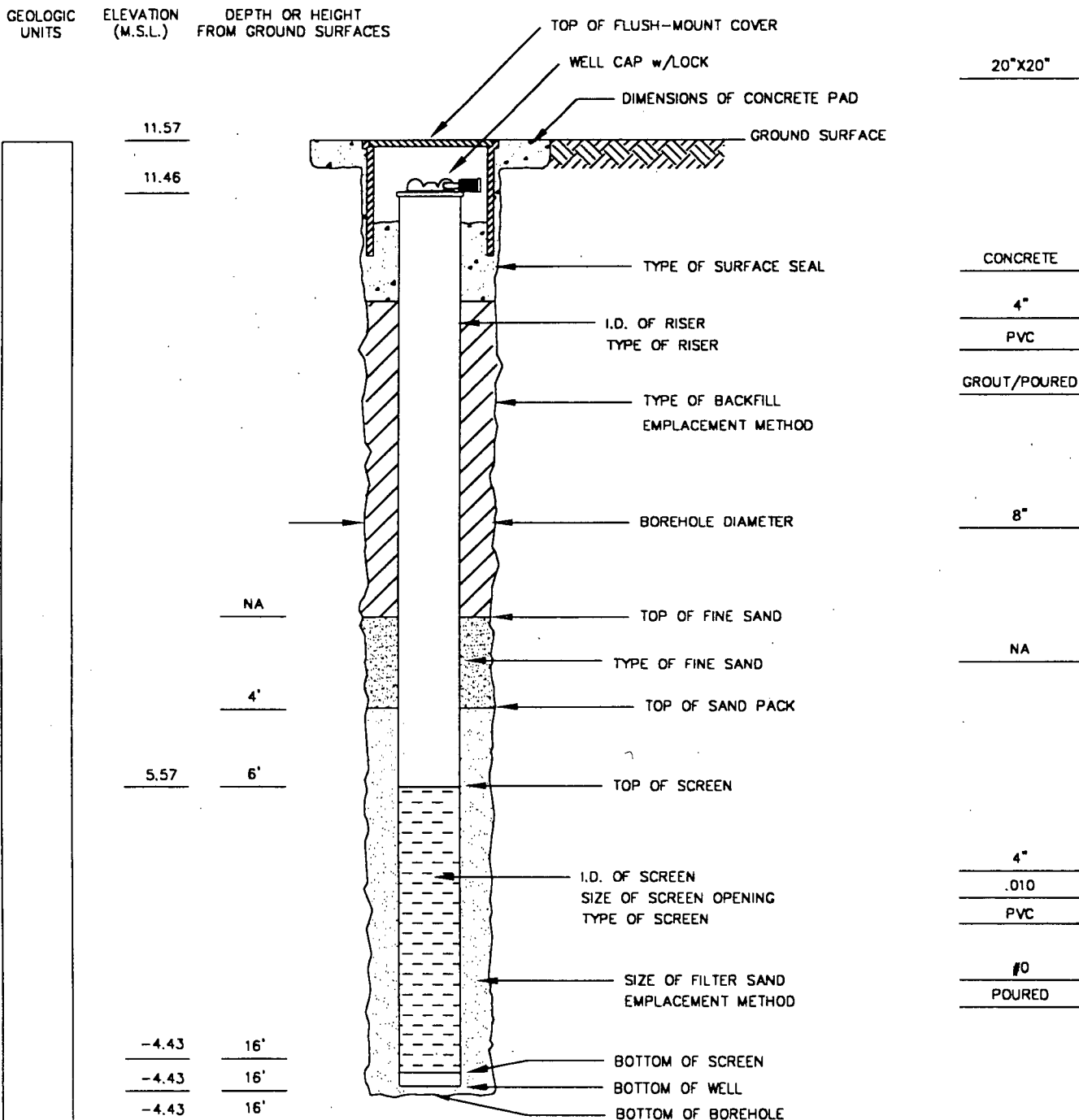


DATE	7/16/97	9/16/97	11/10/98							
DEPTH FROM TOP OF WELL CASING (FEET)	5.82	5.58	6.15							
ELEVATION	3.62	3.86	3.29							



MONITORING WELL INSTALLATION SKETCH

PROJECT: <u>MARTIN AARON - MOD 3</u>	MONITORING WELL NUMBER <u>MW-55</u>
DRILLING COMPANY: <u>JCA</u>	WELL PERMIT NUMBER <u>31-54503</u>
DRILLER: <u>JOHN URBAN</u>	DATE OF WELL INSTALLATION <u>10/12/98</u>
INSPECTOR: <u>BILL STENGER</u>	DATE OF WELL DEVELOPMENT <u>10/14/98</u>

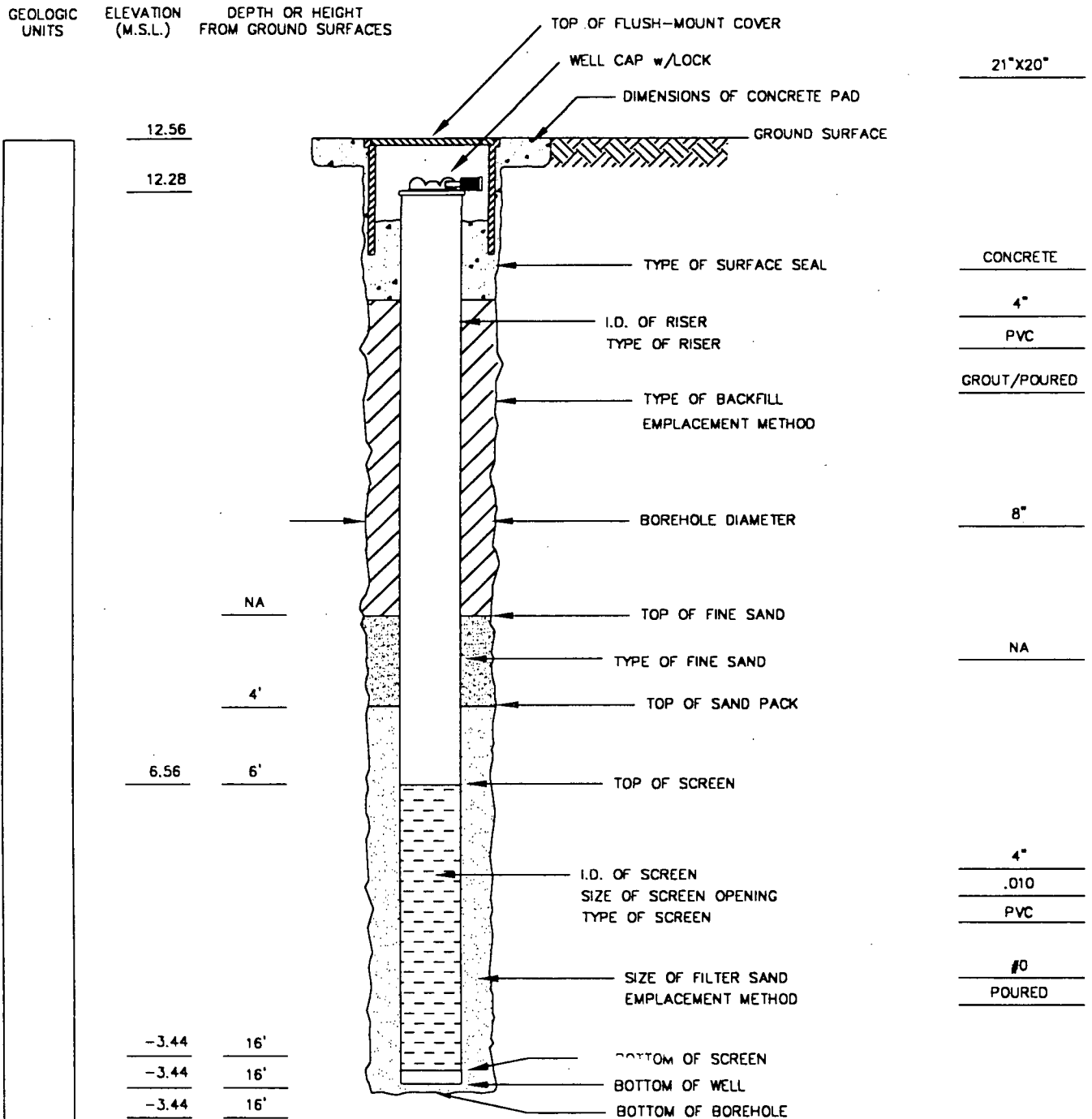


WATER LEVEL MEASUREMENTS

DATE	10/12/98	10/14/98	11/10/98							
DEPTH FROM TOP OF INNER CASING	6.0'	8.6'	12.35'							
ELEVATION	5.46	2.86	-0.89							

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON - MOD 3	MONITORING WELL NUMBER	MW-65
DRILLING COMPANY:	JCA	WELL PERMIT NUMBER	31-54504
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	10/12/98
INSPECTOR:	BILL STENGER	DATE OF WELL DEVELOPMENT	10/14/98

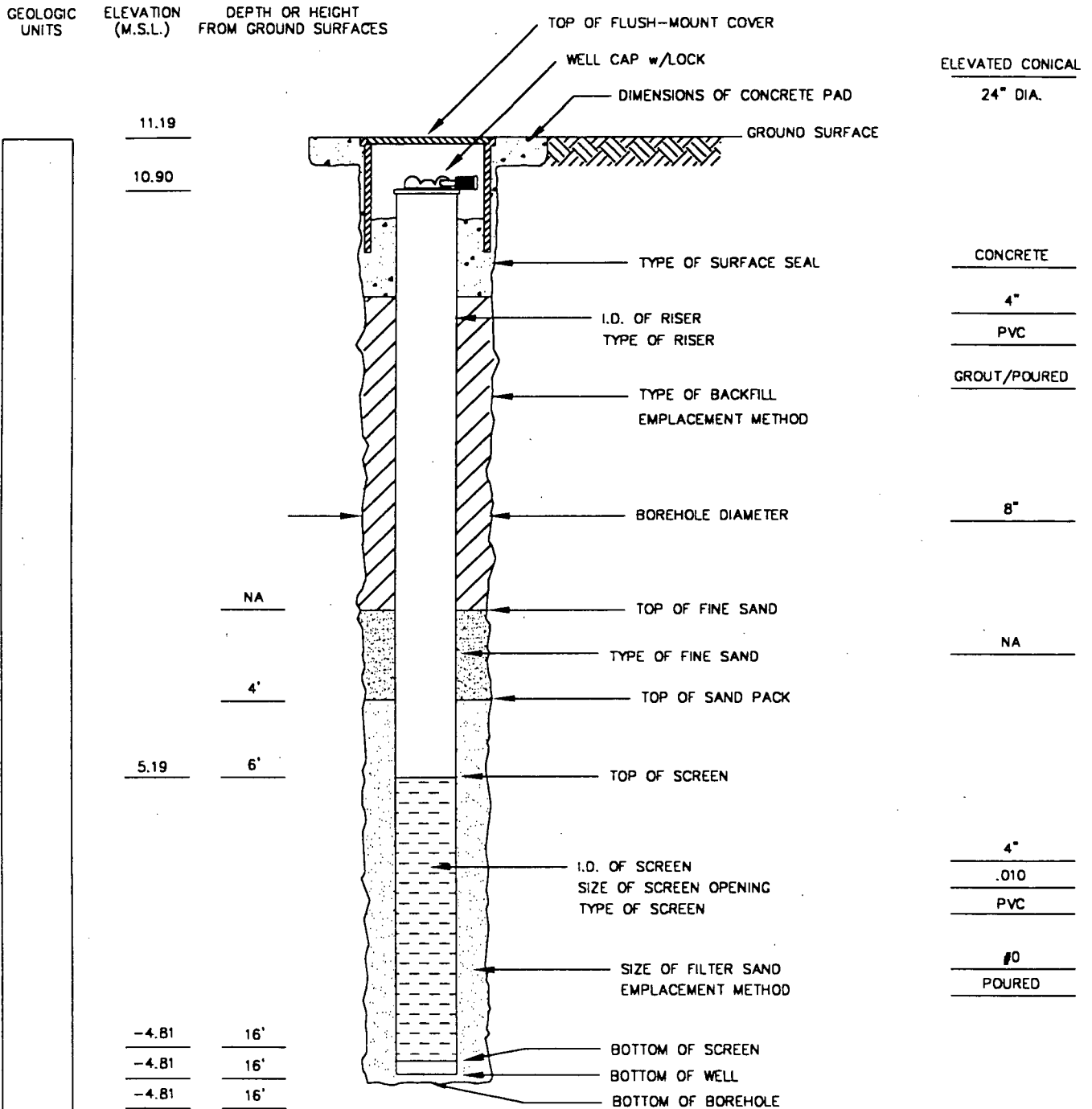


WATER LEVEL MEASUREMENTS

DATE	10/12/98	10/14/98	11/10/98							
DEPTH FROM TOP OF INNER CASING	8.0'	13.8'	14.4'							
ELEVATION	4.28	-1.52	-2.12							

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON - MOD 3	MONITORING WELL NUMBER	MW-7S
DRILLING COMPANY:	JCA	WELL PERMIT NUMBER	31-54505
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	10/13/98
INSPECTOR:	BILL STENGER	DATE OF WELL DEVELOPMENT	10/16/98



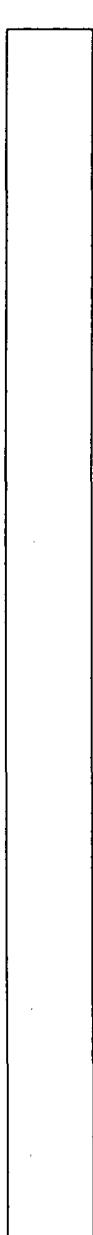
WATER LEVEL MEASUREMENTS

DATE	10/16/98	11/10/98								
DEPTH FROM TOP OF INNER CASING	12.7'	12.96'								
ELEVATION	-1.80	-2.06								

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON - MOD 3	MONITORING WELL NUMBER	MW-85
DRILLING COMPANY:	JCA	WELL PERMIT NUMBER	31-54506
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	10/13/98
INSPECTOR:	BILL STENGER	DATE OF WELL DEVELOPMENT	10/14/98

GEOLOGIC UNITS ELEVATION (M.S.L.) DEPTH OR HEIGHT FROM GROUND SURFACES



10.06

9.89

NA

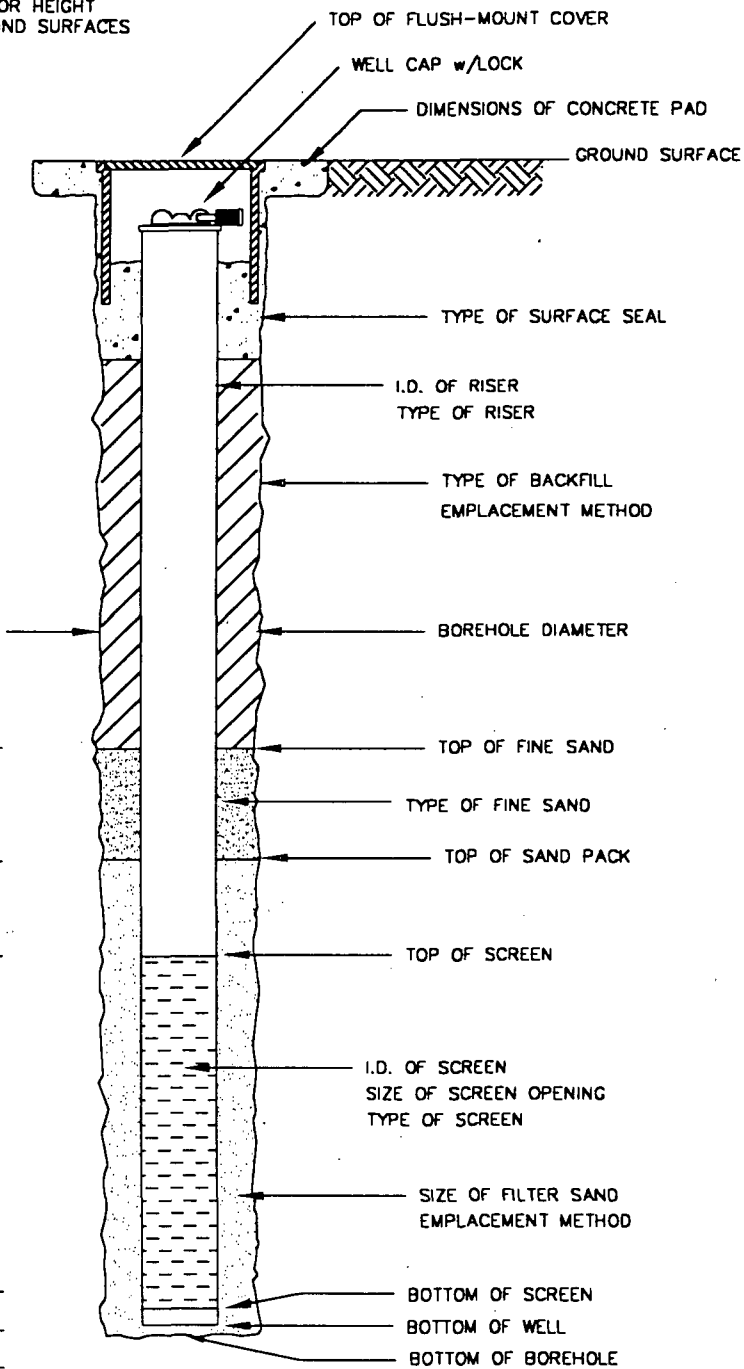
3'

6.06 4'

-3.94 14'

-3.94 14'

-3.94 14'



20"x20"

CONCRETE

4"

PVC

GROUT/POURED

8"

NA

4"

.010

PVC

#0

POURED

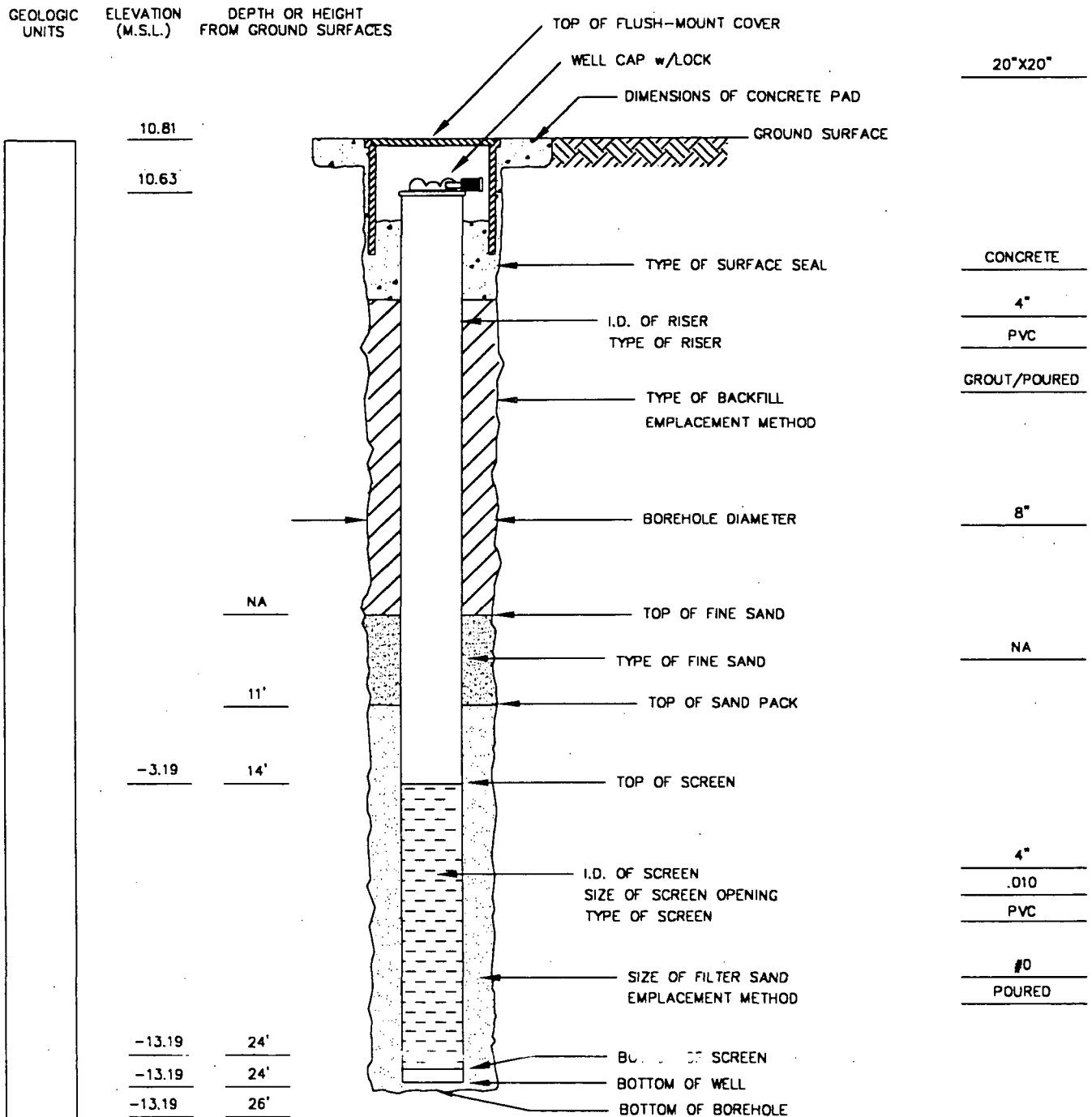
WATER LEVEL MEASUREMENTS

DATE	10/14/98	11/10/98								
DEPTH FROM TOP OF INNER CASING	5.7'	6.8'								
ELEVATION	4.19	3.06								



MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON - MOD 3	MONITORING WELL NUMBER	MW-9S
DRILLING COMPANY:	JCA	WELL PERMIT NUMBER	31-54507
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	10/13/98
INSPECTOR:	BILL STENGER	DATE OF WELL DEVELOPMENT	10/15/98

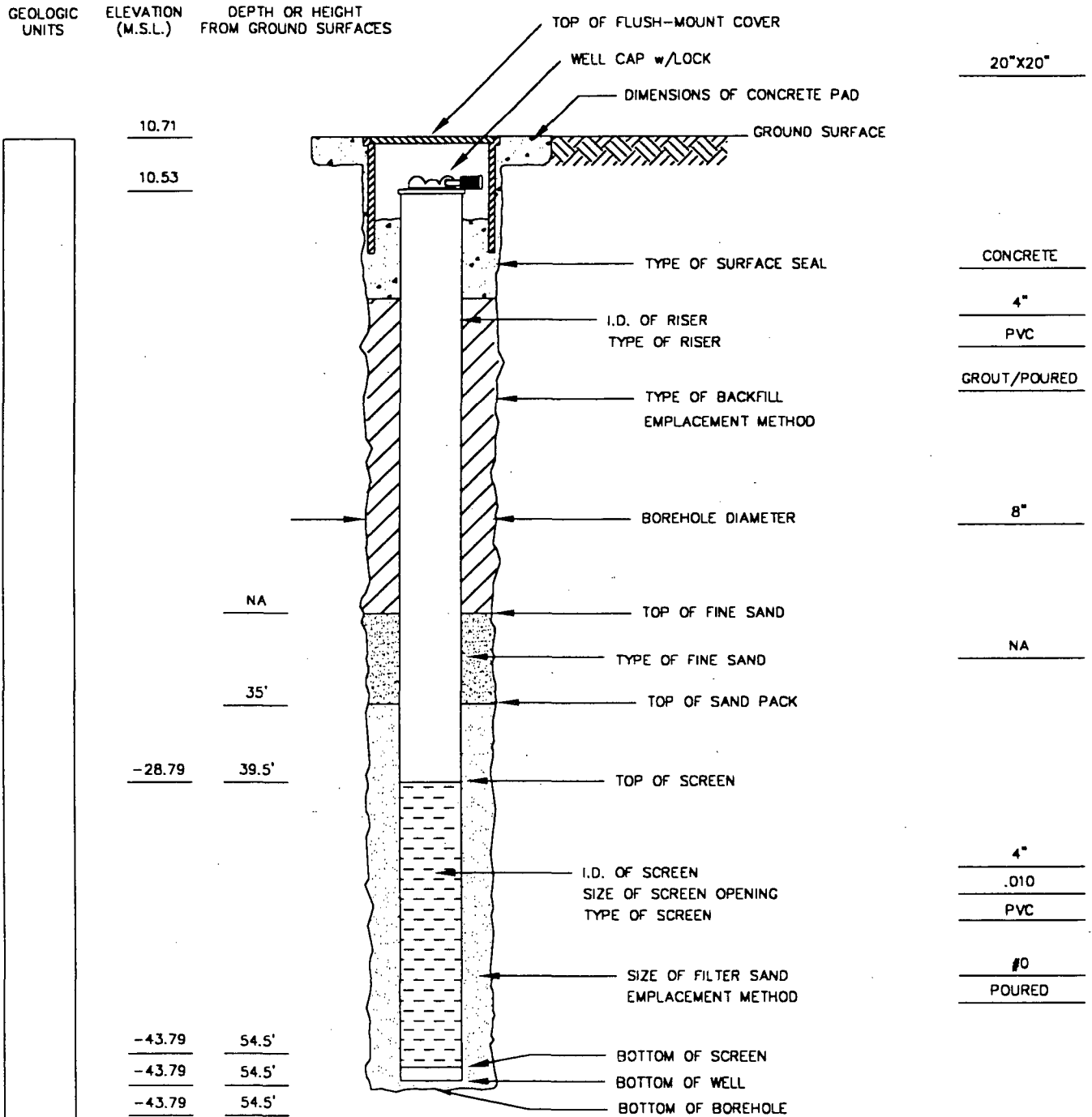


WATER LEVEL MEASUREMENTS

DATE	10/15/98	11/10/98								
DEPTH FROM TOP OF INNER CASING	15.2'	15.43'								
ELEVATION	-4.57	-4.80								

MONITORING WELL INSTALLATION SKETCH

PROJECT:	MARTIN AARON - MOD 3	MONITORING WELL NUMBER	MW-9D
DRILLING COMPANY:	JCA	WELL PERMIT NUMBER	31-54509
DRILLER:	JOHN URBAN	DATE OF WELL INSTALLATION	10/15/98
INSPECTOR:	BILL STENGER	DATE OF WELL DEVELOPMENT	10/16/98



WATER LEVEL MEASUREMENTS

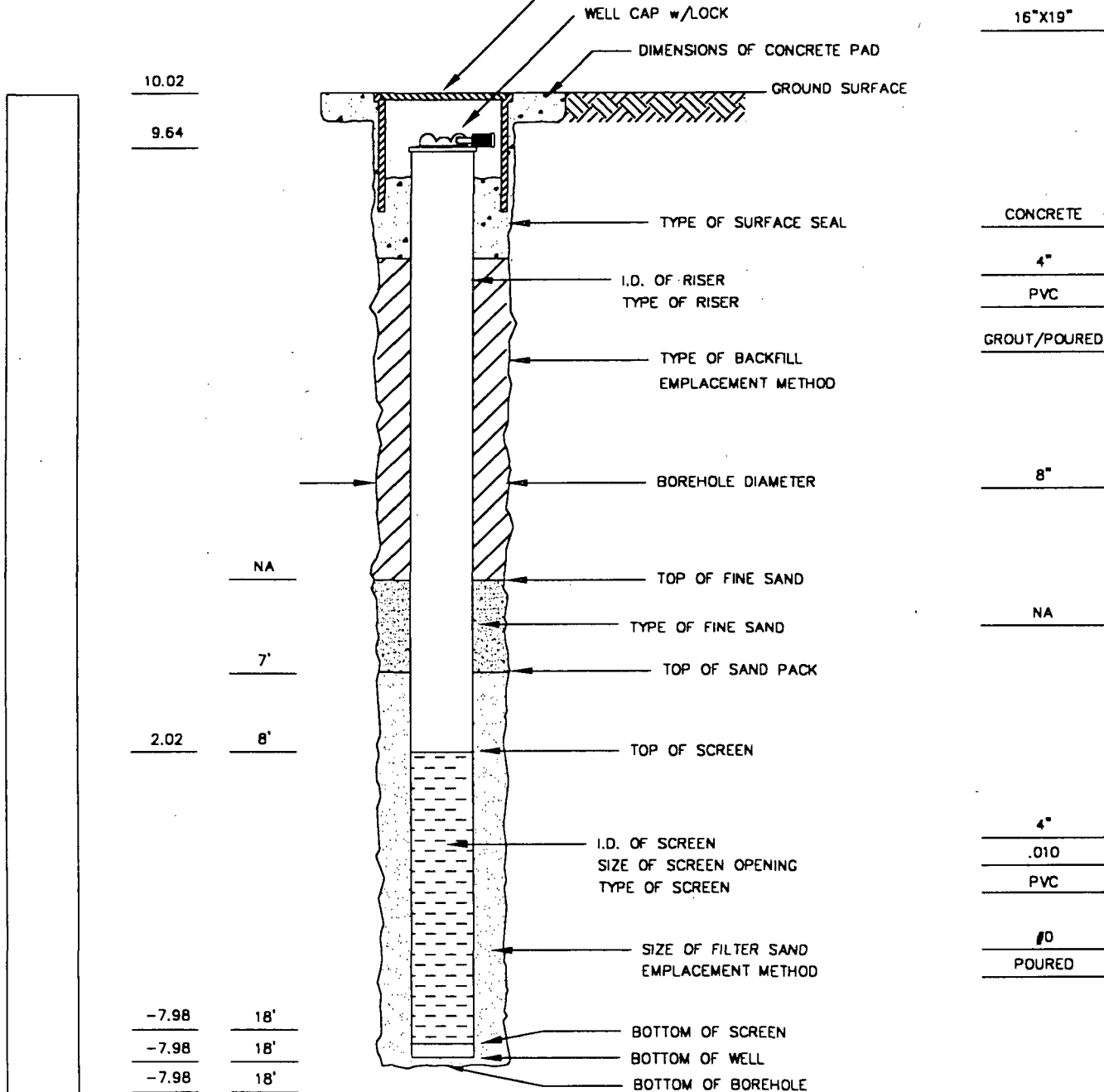
DATE	10/16/98	11/10/98								
DEPTH FROM TOP OF INNER CASING	15.4'	15.4'								
ELEVATION	-4.87	-4.90								

MONITORING WELL INSTALLATION SKETCH

PROJECT: MARTIN AARON - MOD 3
 DRILLING COMPANY: JCA
 DRILLER: JOHN URBAN
 INSPECTOR: BILL STENGER

MONITORING WELL NUMBER: MW-10S
 WELL PERMIT NUMBER: 31-54508
 DATE OF WELL INSTALLATION: 10/14/98
 DATE OF WELL DEVELOPMENT: 10/16/98

GEOLOGIC UNITS ELEVATION (M.S.L.) DEPTH OR HEIGHT FROM GROUND SURFACES



WATER LEVEL MEASUREMENTS

DATE	10/16/98	11/10/98								
DEPTH FROM TOP OF INNER CASING	13.6'	13.8'								
ELEVATION	-3.96	-4.18								

DWR-138 M
11/96New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORDWell Permit No. 31-51431Atlas Sheet Coordinates 31 01 951OWNER IDENTIFICATION - Owner MARTIN AARON, INC.
Address 1542 BROADWAY
City CAMDEN State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. SB 11
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 460
Address 1542 BROADWAYDATE WELL STARTED 6/24/97
DATE WELL COMPLETED 6/24/97TYPE OF WELL (as per Well Permit Categories) BORING
Regulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NJD014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTIONTotal depth drilled 63.0 ft.
Well finished to N/A ft.

Borehole diameter:

Top 4.0 in.
Bottom 4.0 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing height (stick
above land surface N/A ft.steel protective casing installed?
☐ Yes ☒ NoStatic water level after drilling N/A ft.Water level was measured using N/AWell was developed for N/A hours
at N/A gpmMethod of development N/AWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Fluid 3.0% TBMUD Type of Rig FAIRBANKS F-7Health and Safety Plan submitted? ☐ Yes ☒ No

Level of Protection used on site (circle one) None D C B A

I certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable
State rules and regulations.Drilling Company JAMES C. ANDERSON ASSOC. INC.Well Driller (Print) JOHN R. URBANOwner's Signature JOHN R. URBANRegistration No. NJD1386 Date 9/20/97

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	N/A	N/A	N/A	N/A	N/A
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used)					
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	↓	↓	↓	↓	↓
Grout	0	63.0	4.0"	Neat Cement Bentonite	564 lbs. 30 lbs.

Grouting Method TRELLISDrilling Method MUD ROTARY**GEOLOGIC LOG**

Note each depth where water was encountered in consolidated formations.

DEPTH (ft.)	CLASSIFICATION
0 - 6'	fill, box sand cinders, bricks
6' - 10'	fine sand, fine silt & shales
10' - 17'	grey clayey silt & fine sand
17' - 19'	fine sand, fine silt & shales
19' - 32'	fine sand, fine silt & shales
32' - 47'	fine sand, fine silt & shales
47' - 53'	fine sand, fine silt & shales
53' - 61'	fine sand, fine silt & shales
61' - 63'	fine sand, fine silt & shales
	5013

DWR-138 M
11/96

New Jersey Department of Environmental Protection

Bureau of Water Allocation

MONITORING WELL RECORDWell Permit No. 31 51433Atlas Sheet Coordinates 31 01 951OWNER IDENTIFICATION - Owner MARTIN AARON, INC.Address 1542 BROADWAYCity CAMDEN State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-1MCounty CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 460Address 1542 BROADWAYDATE WELL STARTED 6/26/97DATE WELL COMPLETED 6/26/97

TYPE OF WELL (as per Well Permit Categories)

Regulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NJD014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTIONTotal depth drilled 62.0 ft.Well finished to 60.0 ft.

Borehole diameter:

Top 10.0 in.Bottom 10.0 in.Well was finished: ☐ above grade
☒ flush mounted.If finished above grade, casing height (stick
above land surface 1/4 ft.

steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 140 ft.Water level was measured using 1.5-galWell was developed for 1.0 hours
at 2-12 gpmMethod of development air lift pumpingWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity 11/4 gpmPump type: 11/4Drilling Fluid FOUL MUD Type of Rig Failly F 7Health and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None (D) C B AI certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable

State rules and regulations.

JAMES C. ANDERSON ASSOC. INC.

Drilling Company _____

Well Driller (Print) Tom K UrbanOwner's Signature Jim R. UrbanRegistration No. MD1386 Date 9/20/97

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	<u>0.3</u>	<u>50.0</u>	<u>4.0"</u>	<u>PVC, Fluted</u>	<u>4 H 40</u>
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used <u>0.01567</u>)	<u>50.0</u>	<u>60.0</u>	<u>4.0"</u>	<u>PVC, FT</u>	<u>SC H 40</u>
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	<u>17.6</u> <u>42.0</u>	<u>100</u> <u>121</u>	<u>#00</u> <u>#1</u>	<u>FILTER SAND</u>	
Grout	<u>0</u>	<u>47.0</u>		<u>Neat Cement Bentonite</u>	<u>1,632 lbs.</u> <u>90 lbs.</u>

Grouting Method TRENCHDrilling Method MUD ROTARY**GEOLOGIC LOG**

Note each depth where water was encountered in consolidated formations.

DEPTH (FT)	CLASSIFICATION
<u>0 -</u>	<u>0-10' M-F SAND w/</u>
<u>10'</u>	<u>under clay to gravelly silt</u>
<u>10' -</u>	<u>6" clay SATURATED</u>
<u>22'</u>	<u>SILT, to silty silt silt M-F</u>
<u>22' -</u>	<u>14" tan WHITE F-C</u>
<u>37'</u>	<u>SAND, white clay, silty silt</u>
<u>37' -</u>	<u>10" tan M-F SAND to silt</u>
<u>54' 60'</u>	<u>2" tan M-C SAND, to clay</u>
<u>60' -</u>	<u>14" tan WHITE clay, to silty-silty clay</u>
<u>60'</u>	<u>14" tan silty silt to silty clay</u>
	<u>EUR D-4</u>

MONITORING WELL RECORDWell Permit No. 31-51436
Atlas Sheet Coordinates 31:01:951OWNER IDENTIFICATION - Owner Martin Aaron, Inc.
Address 1542 Broadway
City Camden State N.J. Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. mw-2m
County Camden Municipality Camden County Lot No. 1 Block No. 460
Address 1542 Broadway Date well started 6/26/97
TYPE OF WELL (as per Well Permit Categories) Boring Date well completed 6/27/97
Regulatory Program Requiring Well Publicly Funded site mgmt. Case I.D. # NTD014623854
CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____**WELL CONSTRUCTION**Total depth drilled 64 ft.Well finished to 62 ft.Borehole diameter:
Top 8.0 in.Bottom 8.0 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing
height (stick up) above land
surface N/A ft.

Was steel protective casing installed?

☐ Yes ☐ NoStatic water level after drilling 14.13 ft.Water level was measured using m-scopeWell was developed for 1.01 hours at 2-10 gpmMethod of development bailing + pumpingWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/A

Drilling Method _____

Drilling Fluid bentonite mud Type of Rig Failing F-7Name of Driller Jon R. UrbanHealth and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None D C B A

N.J. Registration No. MD1386Name of Drilling Company James C. Anderson Assoc.
Inc.

	Depth to Top (ft.) (From land surface)	Depth to Bottom (ft.)	Diameter (inches)	Type and Material
Inner Casing	0	52	4.0"	PVC, flush thread sch 40
Outer Casing (Not Protective Casing)				
Screen .01 slot (Note slot size)	52	62	4.0"	PVC, flush thread sch 40
Tail Piece				
Gravel Pack	50	64	#1 Filter sand	
Annular Seal/Grout				
Method of Grouting	tremie		Drilling method-mud rotary	

GEOLOGIC LOG(Copies of other geologic logs and/or
geophysical logs should be attached.)

0-11.5' Brown silt, traces med/fine sand
w/ clay lenses
11.5-22' Gray coarse/med sand, small
gravel
22'-30' Gray silt, traces med/coarse sand
traces of gravel
30-40' Sand-gray-coarse w/ sm./med gravel
40-50' Brown/gray silt w/ fine sand traces
50-57' Reddish brown med/coarse sand - larger sm.
clay
57-64' Sand-silty/coarse, med-fine
orange/brown

I certify that I have drilled the above-referenced well in accordance with all well permit requirements and applicable State
rules and regulations.

Driller's Signature

Jon Urban

Date

9/30/97

DWR-138 M
11/96New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORDWell Permit No. 31 51429Atlas Sheet Coordinates 31 : 01 : 951OWNER IDENTIFICATION - Owner HOVEYSON, THOMAS E.Address NE BROADWAY & JACKSON ST.City CAMDEN State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW 3M
County CAMDEN Municipality CAMDEN CITY Lot No. 3 Block No. 460
Address NE BROADWAY & JACKSON ST.DATE WELL STARTED 7/1/97DATE WELL COMPLETED 7/1/97TYPE OF WELL (as per Well Permit Categories) MONITORINGRegulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NJD014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTIONTotal depth drilled 58.0 ft.
Well finished to 57.0 ft.

Borehole diameter:

Top 8.0 in.Bottom 8.0 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing height (stick
above land surface N/A ft.

steel protective casing installed?

☒ Yes ☐ NoStatic water level after drilling 15.36 ft.Water level was measured using M-ScopeWell was developed for 1.0 hours
at 2-12 gpmMethod of development air lift / pumpingWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Fluid Drill bit fluid Type of Rig Drilling R-7Health and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None (D) C B AI certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable

State rules and regulations.

Drilling Company JAMES C. ANDERSON ASSOC. INC.Well Driller (Print) Jon R. UllmanOwner's Signature Jon R. UllmanRegistration No. NJD1386 Date 9/20/97

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	<u>2.3</u>	<u>47.0</u>	<u>4.0"</u>	<u>PVC ELBOW</u>	<u>SCH 40</u>
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used <u>0.05675</u>)	<u>47.0</u>	<u>57.0</u>	<u>4.0"</u>	<u>PVC FT</u>	<u>SCH 40</u>
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	<u>4.4</u>	<u>7.5</u>	<u>#00</u>	<u>FILTER SAND</u>	
Grout	<u>0</u>	<u>47.0</u>		<u>Neat Cement Bentonite</u>	<u>990 lbs. 50 lbs.</u>

Grouting Method TREBLEDrilling Method MUD ROTARY**GEOLOGIC LOG**Note each depth where water was encountered in consolidated
formations.

DEPTH (FT)	CLASSIFICATION
<u>0 -</u>	<u>FILL, DEBRIS, CLAY, SAND, GRAVEL</u>
<u>7'</u>	<u>ASH, SLT</u>
<u>7'</u>	<u>grey M-F SAND w/ silt</u>
<u>15'</u>	<u>grey M-F SAND w/ silt</u>
<u>15'</u>	<u>grey M-F SAND - COARSE SAND</u>
<u>30'</u>	<u>grey M-F SAND w/ silt</u>
<u>30' - 40'</u>	<u>grey M-F SAND w/ silt</u>
<u>40' - 50'</u>	<u>grey M-F SAND w/ silt</u>
<u>50' - 55'</u>	<u>grey M-F SAND w/ silt</u>
<u>55' - 58'</u>	<u>grey M-F SAND w/ silt</u>
<u>58'</u>	<u>grey M-F SAND w/ silt</u>

DWR-138 M
11/96

New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORD

Well Permit No. 31- 51438

Atlas Sheet Coordinates 31 : 61 : 951

OWNER IDENTIFICATION - Owner SOUTH JERSEY PORT CORP.
Address BROADWAY & MORGAN RD BOX 129
City CAMDEN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MIN-45
County CAMDEN Municipality CAMDEN CITY Lot No. 15 Block No. 458
Address BROADWAY & MORGAN 7 10 97

DATE WELL STARTED 7/08/97
DATE WELL COMPLETED 7/08/97

TYPE OF WELL (as per Well Permit Categories) MONITORING DATE WELL COMPLETED 7/08/74
Regulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NID014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 14.2 ft.
Well finished to 14.0 ft.

Borehole diameter:

Top 10.0 in.
Bottom 10.0 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick
above land surface 11.5 ft.

steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 1.0 ft.

Water level was measured using MSR

Well was developed for 10 hours
at 25-15 gpm

Method of development Hand Pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity 12/4 gpm

Pump type: 2H

Drilling Fluid None Type of Rig Flatbed 1-7

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company JAMES C. ANDERSON ASSOC., INC.

Well Driller (Print) TON KURBAN

Director's Signature [Signature]

Registration No. MD1356 Date 9/20/97

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	2.3	4.0	4.0"	PVC Fiberglass	501140
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used 0.15167)	4.0	14.0	4.0"	PVC, Ft	SCH 40
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	2.5 3	3 14.0	4.00 #1	WELL GRAVEL	
Grout	0	2.5		Neat Cement Bentonite	185 lbs. 10 lbs.

Grouting Method Grouting
Drilling Method USA

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

DEPTH	DESCRIPTION
0-2'	CR. LSS STONE
2-6	CR. LSS STONE
6-8	CR. LSS STONE
8-14.2'	CR. LSS STONE
14.2-17	CR. LSS STONE
17-19	CR. LSS STONE
19-21	CR. LSS STONE
21-23	CR. LSS STONE
23-25	CR. LSS STONE
25-27	CR. LSS STONE
27-29	CR. LSS STONE
29-31	CR. LSS STONE
31-33	CR. LSS STONE
33-35	CR. LSS STONE
35-37	CR. LSS STONE
37-39	CR. LSS STONE
39-41	CR. LSS STONE
41-43	CR. LSS STONE
43-45	CR. LSS STONE
45-47	CR. LSS STONE
47-49	CR. LSS STONE
49-51	CR. LSS STONE
51-53	CR. LSS STONE
53-55	CR. LSS STONE
55-57	CR. LSS STONE
57-59	CR. LSS STONE
59-61	CR. LSS STONE
61-63	CR. LSS STONE
63-65	CR. LSS STONE
65-67	CR. LSS STONE
67-69	CR. LSS STONE
69-71	CR. LSS STONE
71-73	CR. LSS STONE
73-75	CR. LSS STONE
75-77	CR. LSS STONE
77-79	CR. LSS STONE
79-81	CR. LSS STONE
81-83	CR. LSS STONE
83-85	CR. LSS STONE
85-87	CR. LSS STONE
87-89	CR. LSS STONE
89-91	CR. LSS STONE
91-93	CR. LSS STONE
93-95	CR. LSS STONE
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109-111	CR. LSS STONE
111-113	CR. LSS STONE
113-115	CR. LSS STONE
115-117	CR. LSS STONE
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119-121	CR. LSS STONE
121-123	CR. LSS STONE
123-125	CR. LSS STONE
125-127	CR. LSS STONE
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211-213	CR. LSS STONE
213-215	CR. LSS STONE
215-217	CR. LSS STONE
217-219	CR. LSS STONE
219-221	CR. LSS STONE
221-223	CR. LSS STONE
223-225	CR. LSS STONE
225-227	CR. LSS STONE
227-229	CR. LSS STONE
229-231	CR. LSS STONE
231-233	CR. LSS STONE
233-235	CR. LSS STONE
235-237	CR. LSS STONE
237-239	CR. LSS STONE
239-241	CR. LSS STONE
241-243	CR. LSS STONE
243-245	CR. LSS STONE
245-247	CR. LSS STONE
247-249	CR. LSS STONE
249-251	CR. LSS STONE
251-253	CR. LSS STONE
253-255	CR. LSS STONE
255-257	CR. LSS STONE
257-259	CR. LSS STONE
259-261	CR. LSS STONE
261-263	CR. LSS STONE
263-265	CR. LSS STONE
265-267	CR. LSS STONE

New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORD

300429

Well Permit No. 31 - 54506
Atlas Sheet Coordinates 31 01 951

OWNER IDENTIFICATION - Owner MARTIN AARON INC.
Address 1542 BROADWAY
City CAMDEN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. 11485 (orig. 11465)
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 400
Address 1542 BROADWAY

TYPE OF WELL (as per Well Permit Categories) MONITORING DATE WELL STARTED 10/13/98
Regulatory Program Requiring Well PUBLICLY FUNDED SITE MONIT. DATE WELL COMPLETED 10/13/98
Case I.D.# NJD014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele. #

WELL CONSTRUCTION

Total depth drilled 14.0 ft.
Well finished to 14.0 ft.

Borehole diameter:

Top 10.0 in.
Bottom 10.0 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface 4.4 ft.

steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 5.7 ft.

Water level was measured using M-Scopes

Well was developed for 0.5 hours
at 21.0 gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Fluid NONE Type of Rig CMR-55

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None C B A

I certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable

State rules and regulations.

Drilling Company JAMES C. ANDERSON ASSOC. INC.

Well Driller (Print) TON RICHMAN

Driller's Signature [Signature]

Registration No. MD1386 Date 10/25/98

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	<u>0.3</u>	<u>4.0</u>	<u>4.0"</u>	<u>CASING PVC FT</u>	<u>SC440</u>
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used <u>0.010</u>)	<u>4.0</u>	<u>14.0</u>	<u>4.0"</u>	<u>SARCO PVC FT</u>	<u>SC440</u>
Blank Casings (No. Used <u></u>)					
Tail Piece					
Gravel Pack	<u>3.0</u>	<u>14.0</u>	<u>#0</u>	<u>WELL GRAV.</u>	
Grout <u>CONCRETE</u>	<u>0</u>	<u>2</u>		Neat Cement	<u>64</u> lbs.
<u>BENTONITE</u>	<u>2.0</u>	<u>3.0</u>		Bentonite	<u>20</u> lbs.

Grouting Method T.C.E.M.I.S.
Drilling Method HSA

GEOLOGIC LOG	
Note each depth where water was encountered in consolidated formations.	
DEPTH (FT)	CLASSIFICATION
<u>0'</u>	<u>FILL, ROCKS, BLK LINDERS BRICK</u>
<u>6'</u>	<u>CLAY W/ SAND - F SAND (10 FT)</u>
<u>6' - 9.2'</u>	<u>CLAY W/ SAND - F SAND (10 FT)</u>
<u>9.2' - 10'</u>	<u>CLAY W/ SAND - F SAND</u>
<u>10' - 11'</u>	<u>CLAY W/ SAND - F SAND</u>
<u>11' - 12'</u>	<u>CLAY W/ SAND - F SAND</u>
<u>12' - 14'</u>	<u>CLAY W/ SAND - F SAND</u>
	<u>END</u>

MONITORING WELL RECORD

Well Permit No. 31 - 54529
Atlas Sheet Coordinates 31 01 951

OWNER IDENTIFICATION - Owner MARTIN AARON INC.
Address 1542 BROADWAY
City CAMDEN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MLW 9 D (ORIG)
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 400
Address 1542 BROADWAY

TYPE OF WELL (as per Well Permit Categories) MONITORING
Regulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NJ014623854
DATE WELL STARTED 10/15/98
DATE WELL COMPLETED 10/15/98

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) Tele. #

WELL CONSTRUCTION

Total depth drilled 55 ft.
Well finished to 54.5 ft.

Borehole diameter:
Top 8.0 in.
Bottom 8.0 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick up) above land surface N/A ft.

Steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 15.4 ft.

Water level was measured using AL-Scope

Well was developed for 1.75 hours
at 1.5 gpm

Method of development pumping

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Fluid Bentonite Type of Rig Fail Safe

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

I certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable
State rules and regulations.

Drilling Company JAMES C. ANDERSON ASSOC. INC.

Well Driller (Print) Tom B. Urcas

Owner's Signature James C. Anderson

Registration No. AD1236 Date 10/15/98

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	0.3	39.5	4.0"	Casing, PVC, FT	SCH 40
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used 0.010) SLOT	39.5	54.5	4.0"	Screen, PVC, FT	SCH 40
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	37.5	55.0	#0	Well Gravel	
Grout <u>calcrete</u>				Neat Cement	64 lbs.
<u>Bentonite</u>				Bentonite	25 lbs.

Grouting Method TRENT
Drilling Method MUD ROTARY

GEOLOGIC LOG	
Note each depth where water was encountered in consolidated formations.	
DEPTH (FT)	CLASSIFICATION
0' - 8'	BRICKS & MICACEOUS BRICKS
8' - 10'	BRICKS, MUD, SILT & CLAY
10' - 12'	CLAY - MUD & SAND
12' - 17'	CLAY & SILT - MUD & SAND
17' - 30'	CLAY & SILT - MUD & SAND
30' - 40'	CLAY & SILT - MUD & SAND
40' - 50'	CLAY & SILT - MUD & SAND
50' - 55'	CLAY & SILT - MUD & SAND
55' - 65'	CLAY & SILT - MUD & SAND
65' - 75'	CLAY & SILT - MUD & SAND
75' - 85'	CLAY & SILT - MUD & SAND
85' - 95'	CLAY & SILT - MUD & SAND
95' - 105'	CLAY & SILT - MUD & SAND
105' - 115'	CLAY & SILT - MUD & SAND
115' - 125'	CLAY & SILT - MUD & SAND
125' - 135'	CLAY & SILT - MUD & SAND
135' - 145'	CLAY & SILT - MUD & SAND
145' - 155'	CLAY & SILT - MUD & SAND
155' - 165'	CLAY & SILT - MUD & SAND
165' - 175'	CLAY & SILT - MUD & SAND
175' - 185'	CLAY & SILT - MUD & SAND
185' - 195'	CLAY & SILT - MUD & SAND
195' - 205'	CLAY & SILT - MUD & SAND
205' - 215'	CLAY & SILT - MUD & SAND
215' - 225'	CLAY & SILT - MUD & SAND
225' - 235'	CLAY & SILT - MUD & SAND
235' - 245'	CLAY & SILT - MUD & SAND
245' - 255'	CLAY & SILT - MUD & SAND
255' - 265'	CLAY & SILT - MUD & SAND
265' - 275'	CLAY & SILT - MUD & SAND
275' - 285'	CLAY & SILT - MUD & SAND
285' - 295'	CLAY & SILT - MUD & SAND
295' - 305'	CLAY & SILT - MUD & SAND
305' - 315'	CLAY & SILT - MUD & SAND
315' - 325'	CLAY & SILT - MUD & SAND
325' - 335'	CLAY & SILT - MUD & SAND
335' - 345'	CLAY & SILT - MUD & SAND
345' - 355'	CLAY & SILT - MUD & SAND
355' - 365'	CLAY & SILT - MUD & SAND
365' - 375'	CLAY & SILT - MUD & SAND
375' - 385'	CLAY & SILT - MUD & SAND
385' - 395'	CLAY & SILT - MUD & SAND
395' - 405'	CLAY & SILT - MUD & SAND
405' - 415'	CLAY & SILT - MUD & SAND
415' - 425'	CLAY & SILT - MUD & SAND
425' - 435'	CLAY & SILT - MUD & SAND
435' - 445'	CLAY & SILT - MUD & SAND
445' - 455'	CLAY & SILT - MUD & SAND
455' - 465'	CLAY & SILT - MUD & SAND
465' - 475'	CLAY & SILT - MUD & SAND
475' - 485'	CLAY & SILT - MUD & SAND
485' - 495'	CLAY & SILT - MUD & SAND
495' - 505'	CLAY & SILT - MUD & SAND
505' - 515'	CLAY & SILT - MUD & SAND
515' - 525'	CLAY & SILT - MUD & SAND
525' - 535'	CLAY & SILT - MUD & SAND
535' - 545'	CLAY & SILT - MUD & SAND
545' - 555'	CLAY & SILT - MUD & SAND
555' - 565'	CLAY & SILT - MUD & SAND
565' - 575'	CLAY & SILT - MUD & SAND
575' - 585'	CLAY & SILT - MUD & SAND
585' - 595'	CLAY & SILT - MUD & SAND
595' - 605'	CLAY & SILT - MUD & SAND
605' - 615'	CLAY & SILT - MUD & SAND
615' - 625'	CLAY & SILT - MUD & SAND
625' - 635'	CLAY & SILT - MUD & SAND
635' - 645'	CLAY & SILT - MUD & SAND
645' - 655'	CLAY & SILT - MUD & SAND
655' - 665'	CLAY & SILT - MUD & SAND
665' - 675'	CLAY & SILT - MUD & SAND
675' - 685'	CLAY & SILT - MUD & SAND
685' - 695'	CLAY & SILT - MUD & SAND
695' - 705'	CLAY & SILT - MUD & SAND
705' - 715'	CLAY & SILT - MUD & SAND
715' - 725'	CLAY & SILT - MUD & SAND
725' - 735'	CLAY & SILT - MUD & SAND
735' - 745'	CLAY & SILT - MUD & SAND
745' - 755'	CLAY & SILT - MUD & SAND
755' - 765'	CLAY & SILT - MUD & SAND
765' - 775'	CLAY & SILT - MUD & SAND
775' - 785'	CLAY & SILT - MUD & SAND
785' - 795'	CLAY & SILT - MUD & SAND
795' - 805'	CLAY & SILT - MUD & SAND
805' - 815'	CLAY & SILT - MUD & SAND
815' - 825'	CLAY & SILT - MUD & SAND
825' - 835'	CLAY & SILT - MUD & SAND
835' - 845'	CLAY & SILT - MUD & SAND
845' - 855'	CLAY & SILT - MUD & SAND
855' - 865'	CLAY & SILT - MUD & SAND
865' - 875'	CLAY & SILT - MUD & SAND
875' - 885'	CLAY & SILT - MUD & SAND
885' - 895'	CLAY & SILT - MUD & SAND
895' - 905'	CLAY & SILT - MUD & SAND
905' - 915'	CLAY & SILT - MUD & SAND
915' - 925'	CLAY & SILT - MUD & SAND
925' - 935'	CLAY & SILT - MUD & SAND
935' - 945'	CLAY & SILT - MUD & SAND
945' - 955'	CLAY & SILT - MUD & SAND
955' - 965'	CLAY & SILT - MUD & SAND
965' - 975'	CLAY & SILT - MUD & SAND
975' - 985'	CLAY & SILT - MUD & SAND
985' - 995'	CLAY & SILT - MUD & SAND
995' - 1005'	CLAY & SILT - MUD & SAND

MONITORING WELL RECORD

CORD Well Permit No. 31 - 54528

Atlas Sheet Coordinates 31: 01 951

OWNER IDENTIFICATION - Owner MARTIN AARON INC.
Address 1542 BROADWAY
City CAMDEN State

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW105 (MW15)
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 460
Address 1542 BROADWAY

DATE WELL STARTED 10/14/98
DATE WELL COMPLETED 10/14/98
TYPE OF WELL (as per Well Permit Categories) MONITORING
Regulatory Program Requiring Well PUBLICLY FUNDED SITE MGMT. Case I.D.# NJD014623854

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 18.0 ft.
Well finished to 18.0 ft.

Borehole diameter:

Top 10.0 in.
Bottom 10.0 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick
up) above land surface 11/2 ft.

steel protective casing installed?

☒ Yes ☐ No

Static water level after drilling 13.6 ft.

Water level was measured using M Scope

Well was developed for 0.6 hours
at 1.5 gpm

Method of development secondary

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: NP

Drilling Fluid MUDE Type of Rig CME-55

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company _____

Well Driller (Print) Tom R. Jernan

_____'s Signature

Registration No. ALD1286 Date 10/12/83

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	0.3'	8.0	4.0"	CASING, PVC FT	SCH 40
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used 0.010 SLOT)	8.0	18	4.0"	SCREEN, PVC FT	SCH 40
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	7.0	18	#0	WELL GRAVEL	
Grout	0	2		Neat Cement	64 lbs.
	2	7		Bentonite	90 lbs.

Grouting Method TrimixDrilling Method HSA

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

[illegible]

DWR-138 M
11/98

New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORD

Well Permit No. 31 - 57272
31 01 95

Atlas Sheet Coordinates _____; _____; _____

OWNER IDENTIFICATION - Owner MARTIN AARON, INC.
Address 1542 BROADWAY
City CAMDEN State NJ Zip Code

WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-11S
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 460
Address 1542 BROADWAY / MW11-S

DATE WELL STARTED 12 / 27 / 79
DATE WELL COMPLETED 12 / 28 / 79

TYPE OF WELL (as per Well Permit Categories) MONITORING DATE WELL COMPLETED 12/18/11
Regulatory Program Requiring Well _____ Case I.D.# _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTION

Total depth drilled 22 ft.
Well finished to 22 ft.

Borehole diameter:
Top 10 in.
Bottom 10 in.

Well was finished: ☐ above grade
☒ flush mounted

If finished above grade, casing height (stick
above land surface NA ft.

Was steel protective casing installed?
☒ Yes ☐ No

Static water level after drilling 13.2 ft. ~~36~~

Water level was measured using M. Scope

Well was developed for 1.25 hours
at 0.5 gpm

Method of development SURGE & POP-P

Was permanent pumping equipment installed? ☐ Yes ☒ No

Pump capacity N/A gpm

Pump type: N/A

Drilling Fluid NO. 1 Type of Rig FAIRBANKS

Health and Safety Plan submitted? ☒ Yes ☐ No

Level of Protection used on site (circle one) None (D) C B A

I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations.

Drilling Company JAMES C. ANDERSON ASSOC. INC

Driller (Print) TON R. URBANDriller's Signature 

Registration No. ML 286 Date 1/10/71

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	0.3	12	4.0	CASING, PVC, FR	SCH 40
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used 0.510) S/LT	12	22	4.0	SCREEN - PVC FIVE THREADED	SCH 40
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	8 10	10 22	5.000 0	WELL GRAVEL	
Grout	0	8		Neat Cement Bentonite	300 lbs. 16 lbs.

Grouting Method PRESSURE TREMIE
Drilling Method HOLLOW STEAM AUGER

GEOLOGIC LOG

Note each depth where water was encountered in consolidated formations.

DEPTH (FT)	CLASSIFICATION
0-1'	CONCRETE GRAVEL BALLAST
1'-	BRN C-F SAND
2'	BRN C-F SAND
3'	BRN C-F SAND
4'	BRN C-F SAND
5'	BRN C-F SAND
6'	BRN C-F SAND
7'	BRN C-F SAND
8'	BRN C-F SAND
9'	BRN C-F SAND
10'	BRN C-F SAND
11'	BRN C-F SAND
12'	BRN C-F SAND
13'	BRN C-F SAND
14'	BRN C-F SAND
15'	BRN C-F SAND
16'	BRN C-F SAND
17'	BRN C-F SAND
18'	BRN C-F SAND
19'	BRN C-F SAND
20'	BRN C-F SAND
21'	BRN C-F SAND
22'	BRN C-F SAND
23'	BRN C-F SAND
24'	BRN C-F SAND
25'	BRN C-F SAND
26'	BRN C-F SAND
27'	BRN C-F SAND
28'	BRN C-F SAND
29'	BRN C-F SAND
30'	BRN C-F SAND
31'	BRN C-F SAND
32'	BRN C-F SAND
33'	BRN C-F SAND
34'	BRN C-F SAND
35'	BRN C-F SAND
36'	BRN C-F SAND
37'	BRN C-F SAND
38'	BRN C-F SAND
39'	BRN C-F SAND
40'	BRN C-F SAND
41'	BRN C-F SAND
42'	BRN C-F SAND
43'	BRN C-F SAND
44'	BRN C-F SAND
45'	BRN C-F SAND
46'	BRN C-F SAND
47'	BRN C-F SAND
48'	BRN C-F SAND
49'	BRN C-F SAND
50'	BRN C-F SAND
51'	BRN C-F SAND
52'	BRN C-F SAND
53'	BRN C-F SAND
54'	BRN C-F SAND
55'	BRN C-F SAND
56'	BRN C-F SAND
57'	BRN C-F SAND
58'	BRN C-F SAND
59'	BRN C-F SAND
60'	BRN C-F SAND
61'	BRN C-F SAND
62'	BRN C-F SAND
63'	BRN C-F SAND
64'	BRN C-F SAND
65'	BRN C-F SAND
66'	BRN C-F SAND
67'	BRN C-F SAND
68'	BRN C-F SAND
69'	BRN C-F SAND
70'	BRN C-F SAND
71'	BRN C-F SAND
72'	BRN C-F SAND
73'	BRN C-F SAND
74'	BRN C-F SAND
75'	BRN C-F SAND
76'	BRN C-F SAND
77'	BRN C-F SAND
78'	BRN C-F SAND
79'	BRN C-F SAND
80'	BRN C-F SAND
81'	BRN C-F SAND
82'	BRN C-F SAND
83'	BRN C-F SAND
84'	BRN C-F SAND
85'	BRN C-F SAND
86'	BRN C-F SAND
87'	BRN C-F SAND
88'	BRN C-F SAND
89'	BRN C-F SAND
90'	BRN C-F SAND
91'	BRN C-F SAND
92'	BRN C-F SAND
93'	BRN C-F SAND
94'	BRN C-F SAND
95'	BRN C-F SAND
96'	BRN C-F SAND
97'	BRN C-F SAND
98'	BRN C-F SAND
99'	BRN C-F SAND
100'	BRN C-F SAND

DWR-138 M
11/98New Jersey Department of Environmental Protection
Bureau of Water Allocation
MONITORING WELL RECORDWell Permit No. 31 - 57273
31 01 951
Atlas Sheet Coordinates _____OWNER IDENTIFICATION - Owner MARTIN AARON, INC.
Address 1542 BROADWAY
City CAMDEN State NJ Zip Code _____WELL LOCATION - If not the same as owner please give address. Owner's Well No. MW-11M
County CAMDEN Municipality CAMDEN CITY Lot No. 1 Block No. 460
Address 1542 BROADWAY / MW11MDATE WELL STARTED 12/28/99
DATE WELL COMPLETED 12/27/99
TYPE OF WELL (as per Well Permit Categories) MONITORING
Regulatory Program Requiring Well _____ Case I.D.# _____

CONSULTING FIRM/FIELD SUPERVISOR (if applicable) _____ Tele. # _____

WELL CONSTRUCTIONTotal depth drilled 58 ft.
Well finished to 58 ft.Borehole diameter:
Top 8.0 in.
Bottom 8.0 in.Well was finished: ☐ above grade
☒ flush mountedIf finished above grade, casing height (stick
above land surface N/A ft.Was steel protective casing installed?
☒ Yes ☐ NoStatic water level after drilling 14.02 ft.Water level was measured using M-ScopeWell was developed for 1.25 hours
at 165 gpmMethod of development SURGE + PUMPWas permanent pumping equipment installed? ☐ Yes ☒ NoPump capacity N/A gpmPump type: N/ADrilling Fluid BENTONITE Type of Rig FAIRING F-7Health and Safety Plan submitted? ☒ Yes ☐ NoLevel of Protection used on site (circle one) None (C) B AI certify that I have constructed the above referenced well in
accordance with all well permit requirements and applicable
State rules and regulations.Drilling Company JAMES C. ANDERSON ASSOC. INC.Driller (Print) JOHN R. ANDERSONDriller's Signature John R. AndersonRegistration No. M1786 Date 1/10/00

Note: Measure all depths from land surface	Depth to Top (ft.)	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)
Single/Inner Casing	<u>0.3</u>	<u>48</u>	<u>4.0</u>	<u>Casing PVC FT</u>	<u>SCH 40</u>
Middle Casing (for triple cased wells only)					
Outer Casing (largest diameter)					
Open Hole or Screen (No. Used <u>0.210</u> Slot)	<u>48</u>	<u>58</u>	<u>4.0</u>	<u>SCREEN PVC, FT.</u>	<u>SCH 40</u>
Blank Casings (No. Used)					
Tail Piece					
Gravel Pack	<u>44</u> <u>46</u>	<u>46</u> <u>58</u>	<u>0.00</u> <u>0</u>	<u>WELL GRAVEL</u>	
Grout	<u>0</u>	<u>44</u>		<u>Neat Cement Bentonite</u>	<u>9118 lbs.</u> <u>485 lbs.</u>

Grouting Method Pressure Tremie
Drilling Method MUD ROTARY**GEOLOGIC LOG**

Note each depth where water was encountered in consolidated formations.	
DEPTH (FT)	CLASSIFICATION
<u>0-1'</u>	<u>CONCRETE GRAVEL BALLAST</u>
<u>1'-</u>	<u>BRNC-FSD, CLUSTERS, small GRAVELS, &</u>
<u>8'</u>	<u>CONCRETE DEBRIS / FILL</u>
<u>8'</u>	<u>BRN-LY GREY F.M. SAND, TA-</u>
<u>32'</u>	<u>1.5' + GRAVELS - 2.0' Filly Fines</u>
<u>32'</u>	<u>SAND - 1.5' - 14.02'</u>
<u>32'</u>	<u>TAIL HOLE - F.M. SAND, TA-</u>
<u>55'</u>	<u>SAND - 1.5' F.S.D. 1.5' - 14.02'</u>
<u>55'</u>	<u>small GRAVELS - 2.0' SAND - 1.5'</u>
<u>58'</u>	<u>TAIL HOLE - 1.5' F.S.D. OVER</u>
<u>58'</u>	<u>Silt clay - 1.5' - 2.0'</u>

SERIAL # 006494

DWR-133M (10/96)

Mail to

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

NJDEP

Bureau Water Allocation

26

Trenton, NJ 08625-0426

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No.

31.01.951

COORD #:

Owner MARTIN AARON, Inc.Address 1542 Broadway
Camden, N.J. 08104Name of Facility SAME

Address _____

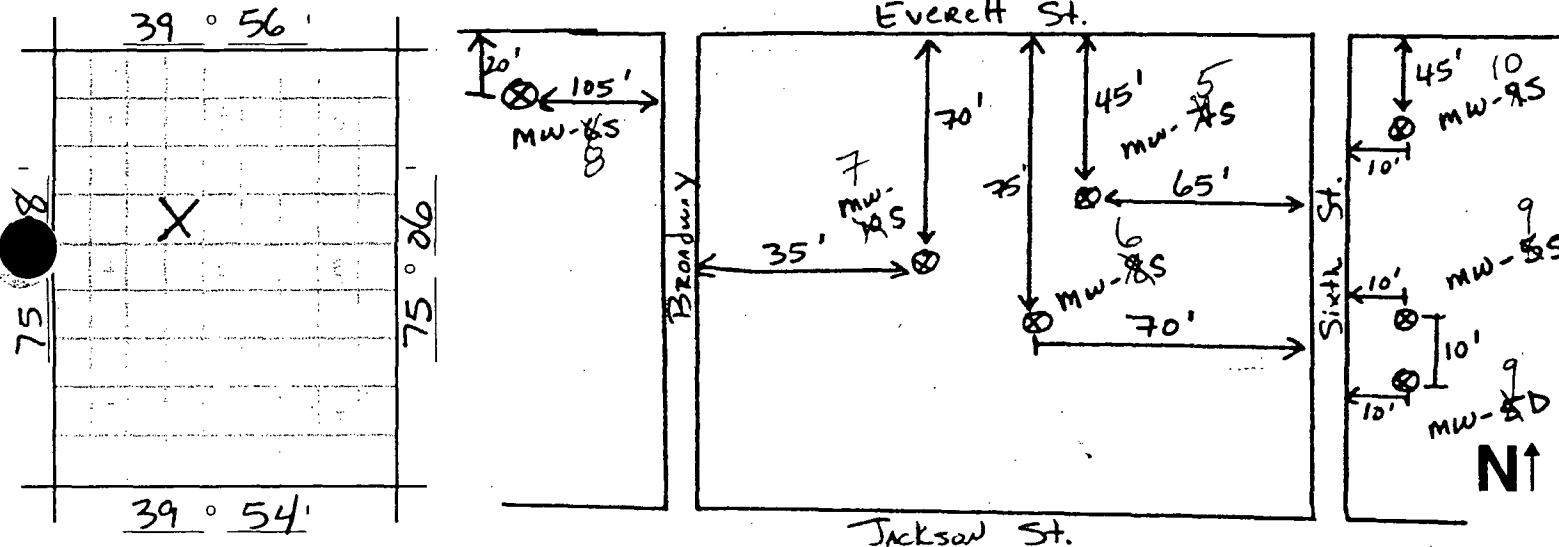
Driller JCA Associates, Inc.Address 1256 N. Church Street
Moorestown, NJ 08057

Diameter of Well(s)	4 Inches	Proposed Depth of Well(s)	15 to 70 Feet
# of Wells Applied for (max. 10)	7	Will pumping equipment be installed?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Type of Well (see reverse)	Monitoring	If Yes, give pump capacity	— cumulative GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	460	Camden	Camden

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 31

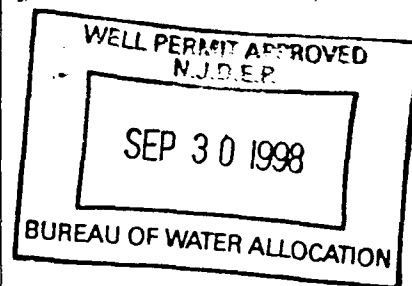
FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Site
☐ ISRA Site
☐ CERCLA (Superfund) Site
☐ RCRA Site
☐ Underground Storage Tank Site
☐ Operational Ground Water Permit Site
☐ Pretreatment and Residuals Site
☐ Water and Hazardous Waste Enforcement Case
☐ Water Supply Aquifer Test Observation Well
☒ Other (explain) Public Funded Site Mgmt.

CASE I.D. Number

NJD014623854

This Space for Approval Stamp

FOR
D.E.P.
USE☐ Issuance of this permit is subject to the conditions attached. (see next page)☒ For monitoring purposes only☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date September 25, 1998

Signature of Driller

Jim Duffy

Registration No.

m1224

Signature of Owner

Ed Scivilli of L.R. Kimball Assoc. - Owners Rep.

300435

SERIAL # 57601

DWR-133M (8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

2 MW 3M 3151439
MW 3D 3151430
Permit No.

COORD #: 91.01.951

Mail to
NJDEP
Bureau Water Allocation
26
Trenton, NJ 08625-0426

Owner Hoverson, Thomas E.
Address NE Broadway and Jackson St
Camden, NJ 08104
Name of Facility Hoverson, Thomas E
Address NE Broadway and Jackson St
Camden, NJ 08104

Driller James C. Anderson Assoc. Inc.
Address 707 Pleasant Valley Ave
Mt. Laurel, NJ 08054

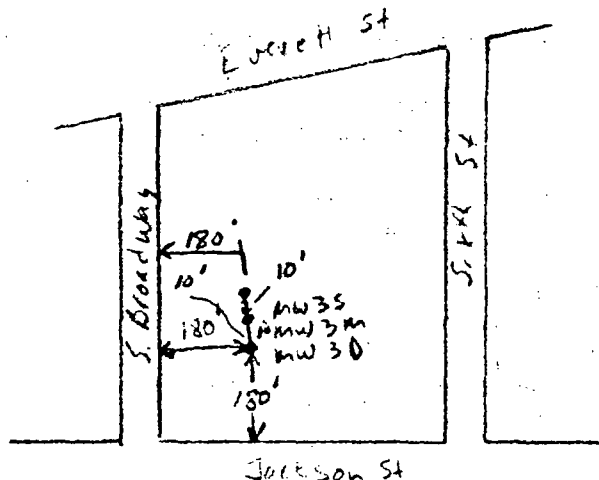
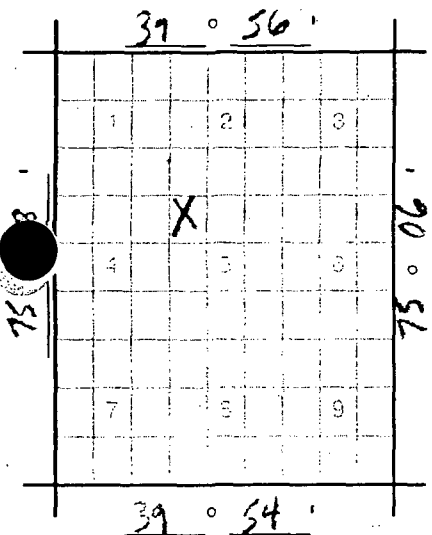
Diameter of Well(s)	<u>8 4</u> inches	Proposed Depth of Well(s)	<u>75</u> Feet
# of Wells Applied for (max. 10)	<u>3</u>	Will pumping equipment be installed? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
Type of Well (see reverse)	<u>Monitoring</u>	If Yes, give pump capacity	<u>cumulative GPM</u>

LOCATION OF WELL(S)

Lot # <u>3</u>	Block # <u>460</u>	Municipality <u>Camden</u>	County <u>Camden</u>
----------------	--------------------	----------------------------	----------------------

State Atlas Map No. 31

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

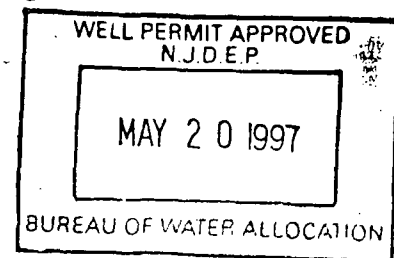
- ☐ Spill Site
- ☐ ISRA Site
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☐ Underground Storage Tank Site
- ☐ Operational Ground Water Permit Site
- ☐ Pretreatment and Residuals Site
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well

☒ Other (explain) Partially Filled Site Mgmt

CASE I.D. Number

1122014-23-24

This Space for Approval Stamp



FOR
D.E.P.
USE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
- ☒ For monitoring purposes only
- ☐

☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date May 15, 1997

Signature of Driller

Jim Duffy

Registration No.

m1224

Signature of Owner

[Signature]

300436

SERIAL # 57600

DWR-133M (8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

MW 45 3151438
Permit No.

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD #: 31.01.951

Mail to
NJDEP
Bureau Water Allocation
26
Trenton, NJ 08625-0426

Owner: South Jersey Post Corp.
Address: Broadway and Morgan PO Box 129
Camden NJ 08104
Name of Facility: South Jersey Post Corp.
Address: Broadway and Morgan PO Box 129
Camden NJ 08104

Driller: James C. Amberson Assoc. Inc.
Address: 907 Pleasant Valley Ave
Allentown NJ 08104

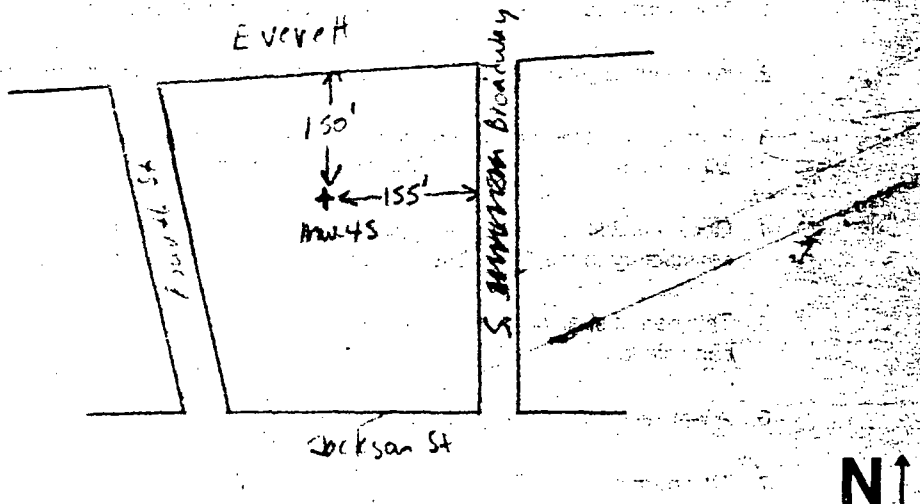
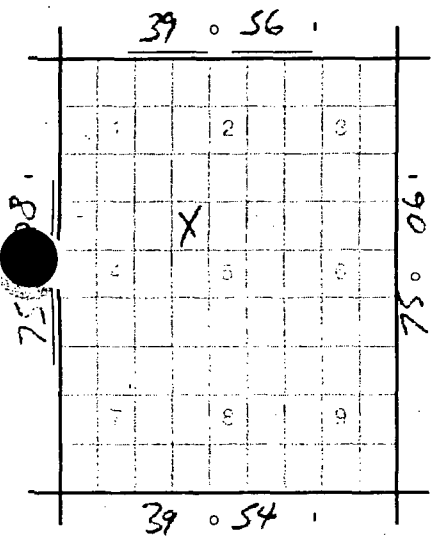
Diameter of Well(s)	8 1/2 inches	Proposed Depth of Well(s)	20 Feet
# of Wells Applied for (max. 10)	1	Will pumping equipment be installed?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Type of Well (see reverse)	Monitoring	If Yes, give pump capacity	cumulative GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
15	458	Camden	Camden

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 31



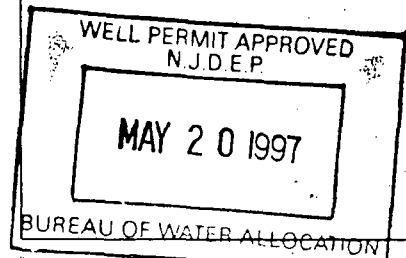
FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Site
- ☐ ISRA Site
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☐ Underground Storage Tank Site
- ☐ Operational Ground Water Permit Site
- ☐ Pretreatment and Residuals Site
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well
- ☒ Other (explain) Water and Hazardous Waste Enforcement Case

CASE I.D. Number

1110046633854

This Space for Approval Stamp



FOR N.J.D.E.P. USE ☐ Issuance of this permit is subject to the conditions attached. (see next page) ☒ For monitoring purposes only

☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date May 15, 1997

Signature of Driller Jim Duffy

Registration No. 11224

Signature of Owner [Signature]

300437

SERIAL # 51599
DWR-133M (8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

Mail to
NJDEP
Bureau Water Allocation
26
Trenton, NJ 08625-0426

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

Permit No. MW 2D 3151437

COORD #: 31.01.951

Owner Martin Aaron, Inc.
Address 1542 Broadway
Camden, NJ 08104
Name of Facility Martin Aaron, Inc.
Address 1542 Broadway
Camden NJ 08104

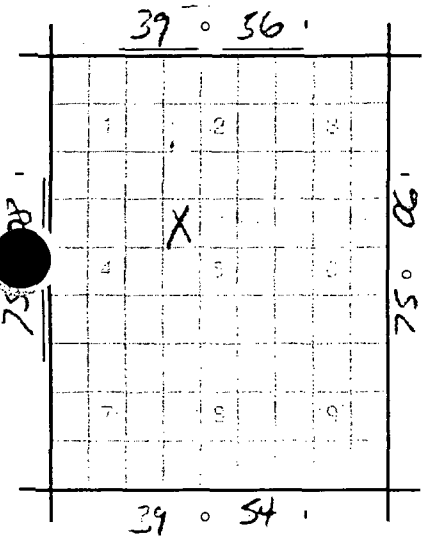
Driller James C. Anderson Assoc. Inc.
Address 907 Pleasant Valley Ave
Mr. Lunn NJ 08054

Diameter of Well(s)	8	Inches	Proposed Depth of Well(s)	75	Feet
# of Wells Applied for (max. 10)	6		Will pumping equipment be installed?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	
Type of Well (see reverse)	Monitoring		If Yes, give pump capacity		cumulative GPM

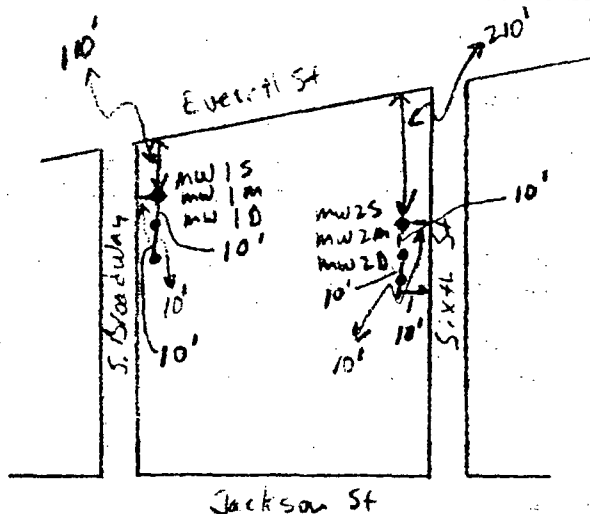
LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	460	Camden	Camden

State Atlas Map No. 31



Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

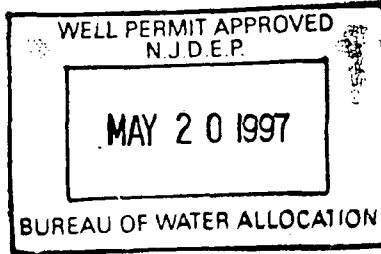
- ☐ Spill Site
- ☐ ISRA Site
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☐ Underground Storage Tank Site
- ☐ Operational Ground Water Permit Site
- ☐ Pretreatment and Residuals Site
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well

☒ Other (explain) Emergency Response

CASE I.D. Number

12201423854

This Space for Approval Stamp



FOR
D.E.P.
SE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
- ☒ For monitoring purposes only

☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date May 15, 1997

Signature of Driller Jim Duffey

Registration No. m1224

300438

Signature of Owner [Signature]

SERIAL # 57602

DWR-133M (8/95)

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

Mail to

NJDEP
Bureau Water Allocation
6
Trenton, NJ 08625-0426

MONITORING WELL PERMIT

Permit No. 3151431

VALID ONLY AFTER APPROVAL BY THE D.E.P.

COORD #: 31.01.951

Owner Martin Avon Inc.
Address 1542 Broadway
Camden NJ 08104
Name of Facility Martin Avon Inc.
Address 1542 Broadway
Camden, NJ 08104

Driller James C. Anderson Assoc. Inc.
Address 707 Pleasant Valley Ave
Mt Laurel NJ 08054

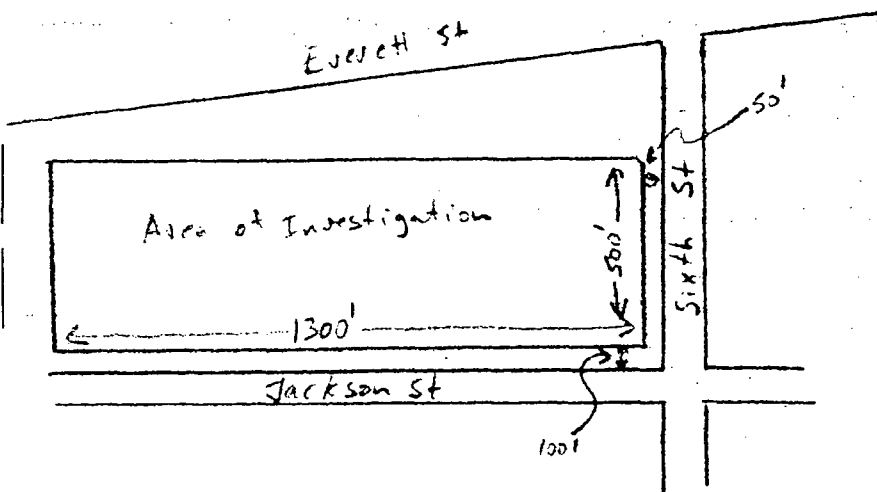
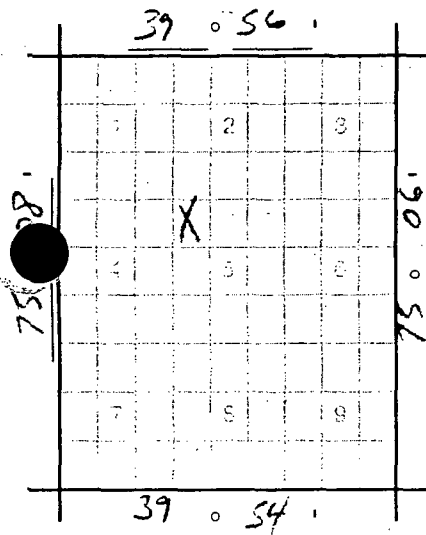
Diameter of Well(s)	<u>6</u> Inches	Proposed Depth of Well(s)	<u>75</u> Feet
# of Wells Applied for (max. 10)	<u>Blanket</u>	Will pumping equipment be installed?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Type of Well (see reverse)	<u>Boring</u>	If Yes, give pump capacity	<u>cumulative GPM</u>

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
<u>1</u>	<u>460</u>	<u>Camden</u>	<u>Camden</u>

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.

State Atlas Map No. 31



N ↑

FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

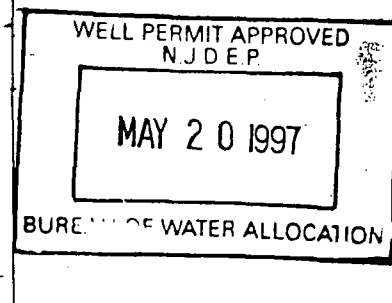
- ☐ Spill Site
- ☐ ISRA Site
- ☐ CERCLA (Superfund) Site
- ☐ RCRA Site
- ☐ Underground Storage Tank Site
- ☐ Operational Ground Water Permit Site
- ☐ Pretreatment and Residuals Site
- ☐ Water and Hazardous Waste Enforcement Case
- ☐ Water Supply Aquifer Test Observation Well

☒ Other (explain) Public Health Study

CASE I.D. Number

NJDO14623024

This Space for Approval Stamp



FOR
D.E.P.
USE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
- ☐ For monitoring purposes only

- ☐ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date MAY 15, 1997

Signature of Driller

Registration No.

M1224

Signature of Owner

300439

SERIAL # 007968

DWR-133M (10/96)

Mail to

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
TRENTON, NJ

NJDEP

Bureau Water Allocation

26

Trenton, NJ 08625-0426

MONITORING WELL PERMIT

VALID ONLY AFTER APPROVAL BY THE D.E.P.

MW115 3157272

MW11M 3157272

Permit No. _____

COORD #:

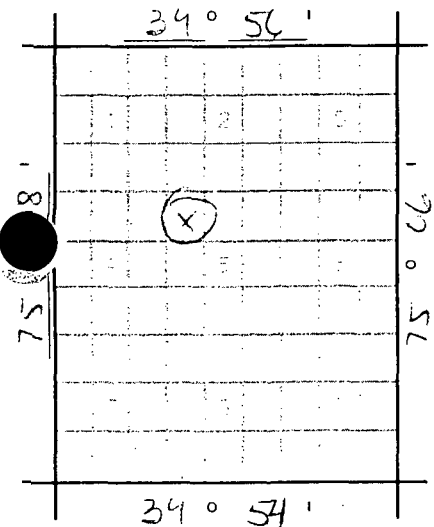
31.01.951

Owner Master H&L, IncAddress 1542 BroadwayCamden, NJ 08104Name of Facility SameAddress SameDriller JCH Associates, IncAddress 1250 N. Broad StMorristown, NJ 08857

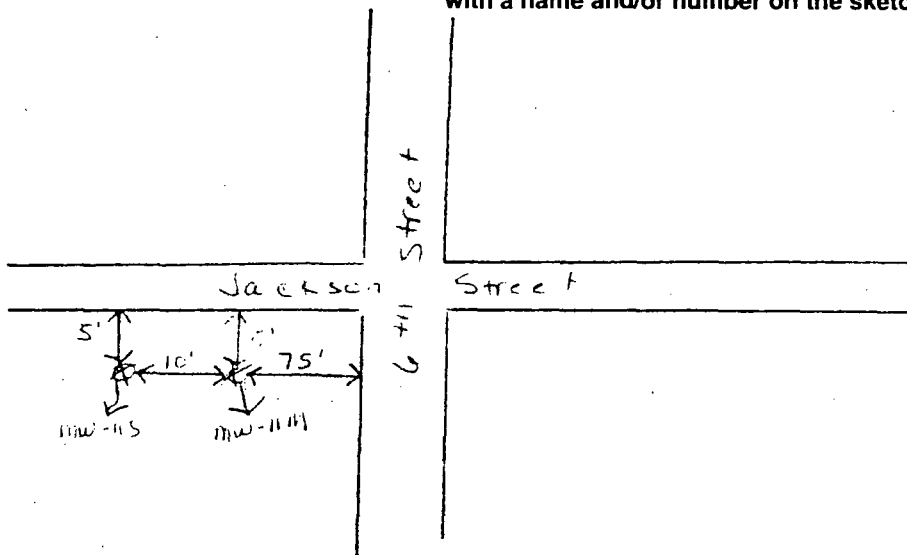
Diameter of Well(s)	4" Inches	Proposed Depth of Well(s)	5-60' Feet
# of Wells Applied for (max. 10)	2	Will pumping equipment be installed?	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
Type of Well (see reverse)	Monitoring	If Yes, give pump capacity	cumulative GPM

LOCATION OF WELL(S)

Lot #	Block #	Municipality	County
1	460	Camden	Camden

State Atlas Map No. 31

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch.



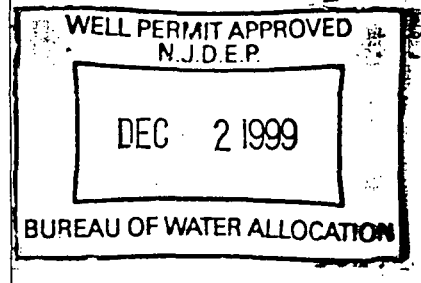
FOR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE FOLLOWING MUST BE COMPLETED BY THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING INSTALLED:

- ☐ Spill Site
☐ ISRA Site
☐ CERCLA (Superfund) Site
☐ RCRA Site
☐ Underground Storage Tank Site
☐ Operational Ground Water Permit Site
☐ Pretreatment and Residuals Site
☐ Water and Hazardous Waste Enforcement Case
☐ Water Supply Aquifer Test Observation Well
☒ Other (explain) Public Funded Site Mgmt

CASE I.D. Number

WS1014623854

This Space for Approval Stamp

FOR
D.E.P.
SE

- ☐ Issuance of this permit is subject to the conditions attached. (see next page)
☒ For monitoring purposes only
☐

☒ The well(s) may not be completed with more than 25 feet of total screen or uncased borehole.

REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described above.

Date Dec 30 1999Signature of Driller James W. KellyRegistration No. 111024Signature of Owner Ed. Smith et al. K. Russell/K. Russell

300440

DWR-020
8/97New Jersey Department of Environmental Protection
Water Supply Element - Bureau of Water Allocation**WELL ABANDONMENT REPORT**MAIL TO: Bureau of Water Allocation
PO Box 426
Trenton, NJ 08625-0426WELL PERMIT # 31-51429
of well sealedDATE WELL SEALED 11/16/98PROPERTY OWNER THOMAS E. HOVEYSONADDRESS NE BROADWAY & JACKSON ST., CAMDEN, NJWELL LOCATION NE BROADWAY & JACKSON ST., CAMDEN TWP., CAMDEN COUNTY
Street & No., Township, CountyMW3M# 3# 460

Well No.

Lot No.

Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORINGREASON FOR ABANDONMENT: NO LONGER NEEDEDWAS A NEW WELL DRILLED? ☐ YES ☒ NOPERMIT # OF NEW WELL N/A

TOTAL DEPTH OF WELL

57.0'

DIAMETER

4.0"

CASING LENGTH

47'

SCREEN LENGTH

10'

NUMBER OF CASINGS

1

MATERIAL USED TO DECOMMISSION WELL:

40

Gallons of Water

470

Lbs. of Cement

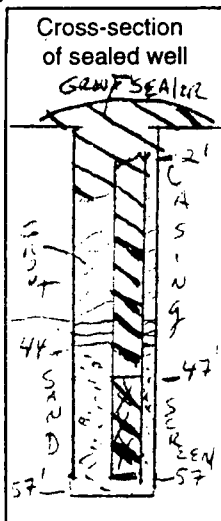
25

Lbs. of Bentonite

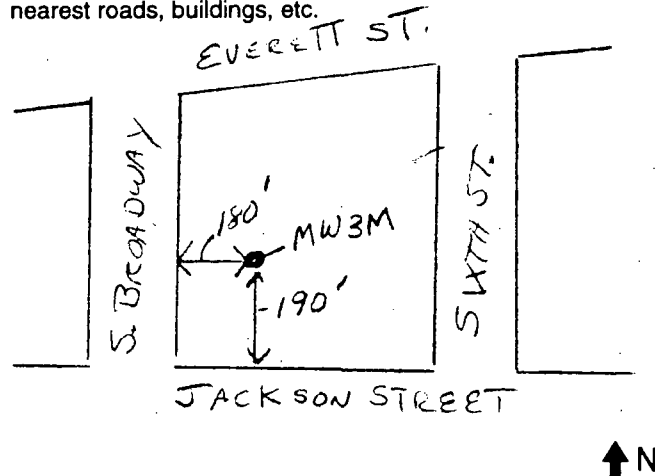
Lbs. of Sand/Gravel

(none if well is contaminated)

FORMATION:

☐ Consolidated
☒ Unconsolidated

Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NOCASING MATERIAL: 5CH40 PVC FLUSH JOINTWERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NOWHAT WERE THE OBSTRUCTIONS: N/A

IF "YES", AUTHORIZATION GRANTED BY _____

ON _____

(NJDEP Official)

(Date)

Was an alternative decommissioning method used? ☐ YES ☒ NO

IF "YES", authorization granted by _____

ON _____

(NJDEP Official)

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

Performing Work (Print or Type)
Name of NJ Certified Well Sealer

JCM, INC.
1256 N. CHURCH ST. SUITE 3
Address MOORESTOWN, NJ 08057
Signature of NJ Certified Well Sealer
Performing Work

Mailing Date
MD1386
Registration #

COPIES:

White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

DWA-020
8/97New Jersey Department of Environmental Protection
Water Supply Element - Bureau of Water Allocation**WELL ABANDONMENT REPORT**WELL PERMIT # 31-51428
of well sealedMAIL TO: Bureau of Water Allocation
PO Box 426
Trenton, NJ 08625-0426DATE WELL SEALED 11/16/98PROPERTY OWNER THOMAS E. HOVENSONADDRESS NE BROADWAY AND JACKSON ST., CAMDEN, NJ 08104WELL LOCATION NE BROADWAY AND JACKSON ST. CAMDEN TWP., CAMDEN COUNTY
Street & No., Township, CountyMW-3S

Well No.

3

Lot No.

460

Block No.

USE OF WELL PRIOR TO ABANDONMENT: MONITORINGREASON FOR ABANDONMENT: NO LONGER NEEDEDWAS A NEW WELL DRILLED? ☐ YES ☒ NOPERMIT # OF NEW WELL N/A

TOTAL DEPTH OF WELL

16.0'

DIAMETER

4.0"

CASING LENGTH

6.0'

SCREEN LENGTH

10.0'

NUMBER OF CASINGS

1

MATERIAL USED TO DECOMMISSION WELL:

120

Gallons of Water

141

Lbs. of Cement

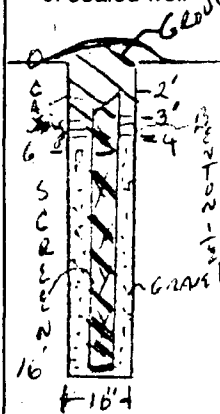
7.5

Lbs. of Bentonite

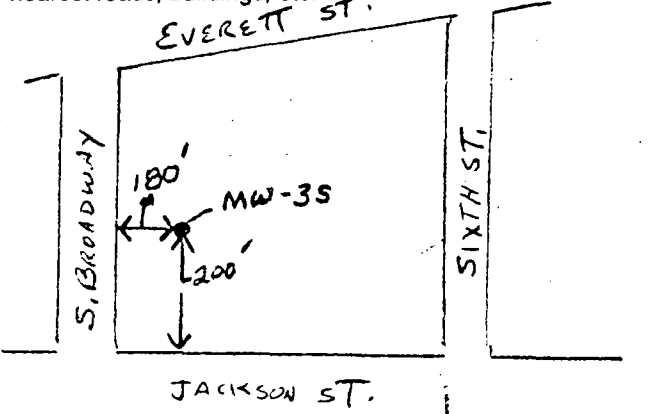
Lbs. of Sand/Gravel

(none if well is contaminated)

FORMATION:

☐ Consolidated
☒ UnconsolidatedCross-section
of sealed well

Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.



To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.

WAS CASING LEFT IN PLACE? ☒ YES ☐ NO CASING MATERIAL: SCH 40 PVC FLUSH JOINTWERE OTHER OBSTRUCTIONS LEFT IN WELL? ☐ YES ☒ NO WHAT WERE THE OBSTRUCTIONS: _____

IF "YES", AUTHORIZATION GRANTED BY _____ ON _____

(NJDEP Official)

(Date)

Was an alternative decommissioning method used? ☐ YES ☒ NO

IF "YES", authorization granted by _____ ON _____

(NJDEP Official)

(Date)

I certify that this well was sealed in accordance with N.J.A.C. 7:9-9.1 et seq.

TON R. VIKAR
Performing Work (Print or Type)
Name of NJ Certified Well Sealer

JCA INC.
1256 N. CHURCH ST. SUITE 3
Address MORRISTOWN, NJ 07960
TON R. Vikar
Signature of NJ Certified Well Sealer
Performing Work

MD1396
Mailing Date
Registration #

COPIES:

White - Water Allocation

Yellow - Owner

Pink - Health Dept.

Goldenrod - Driller

PROJECT:	<u>MARTIN AARON</u>	MONITORING WELL NUMBER:	<u>MW-115</u>
DRILLING COMPANY:	<u>JCA</u>	WELL PERMIT NUMBER:	<u></u>
DRILLER:	<u>JOHN URBAN</u>	DATE OF WELL INSTALLATION	<u>12/27/99</u>
INSPECTOR:	<u>BILL STENGER</u>	DATE OF WELL DEVELOPMENT	<u>12/29/00</u>

GEOLOGIC UNITS	ELEVATION (M.S.L.)	DEPTH OR HEIGHT FROM GROUND SURFACES
-------------------	-----------------------	---

TOP OF FLUSH-MOUNT COVER

WELL CAP w/LOCK

- DIMENSIONS OF CONCRETE PAD

GROUND SURFACE

21"x20"

6.09

TYPE OF SURFACE SEAL

CONCRETE

I.D. OF RISER

4-

TYPE OF RISER

PVC

TYPE OF BACKFILL
EMPLACEMENT METHOD

GROUT/POURED

BOREHOLE DIAMETER

8th

NA

TOP OF FINE SAND

TYPE OF FINE SAND

NA

8

- TOP OF SAND PACK

11'

TOP OF SCREEN

I.D. OF SCREEN
SIZE OF SCREEN OPENING
TYPE OF SCREEN

4.

.010

PVC

SIZE OF FILTER SAND
EMPLACEMENT METHOD

40

POURED

21-

BOTTOM OF SCREEN

21'

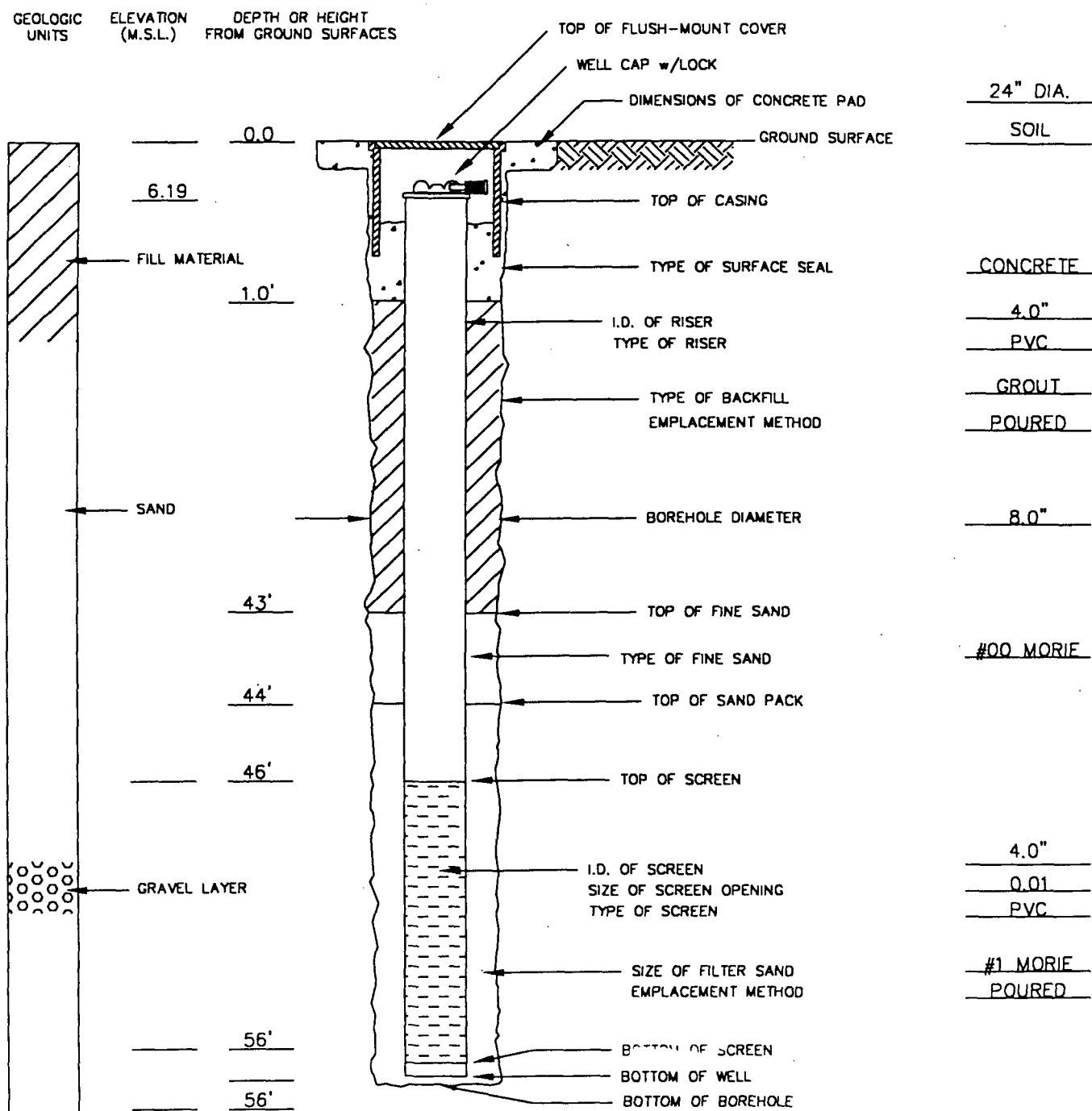
BOTTOM OF WELL

21'

BOTTOM OF BOREHOLE

[illegible]

PROJECT:	<u>MARTIN AARON RI/RAA</u>	MONITORING WELL NUMBER	<u>MW-11M</u>
DRILLING COMPANY:	<u>JAMES C. ANDERSON ASSOCIATES, INC.</u>	WELL PERMIT NUMBER	<u></u>
DRILLER:	<u>JOHN URBAN</u>	DATE OF WELL INSTALLATION	<u>12/28/99</u>
INSPECTOR:	<u>WILLIAM E. STENGER</u>	DATE OF WELL DEVELOPMENT	<u>12/29/00</u>

[illegible]

Well Development Record

Well Number	<u>MW11M</u>	Date of Installation	<u>12/28/99</u>
Site Geologist	<u>A. E. Sciulli</u>	Date of Development	<u>12/29/99</u>
Static Water Level	Before Development	24 Hrs. After Development	Date
From Top of Casing	<u>14</u> ft.	<u>13.3</u> ft.	<u>12/29/00</u>
Depth to Sediment	Before Development	24 Hrs. After Development	Date
	<u>N/A</u> ft.	<u>N/A</u> ft.	<u>N/A</u>
Depth to Well Bottom	Before Development	24 Hrs. After Development	Date
	<u>55.6</u> ft.	<u>56</u> ft.	<u>12/29/00</u>
Height of Casing Above Ground Surface	<u>FLUSH MOUNT</u> ft.		
Quantity of Mud/Water	Lost During Drilling	<u>0</u> gal.	
	Removed Prior to Well Insertion	<u>0</u> gal.	
	Lost During Displacement	<u>0</u> gal.	
	Added During Filter Pack Placement	<u>0</u> gal.	
a) Water Column Height	<u>42</u> ft.	b) Well Radius	<u>2.0</u> in.
c) Screen Length	<u>10.0</u> ft.	d) Borehole Radius	<u>4.0</u> in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	<u>27.3</u> gal.	Total Quantity (5 Equivalent Volumes)	TQV <u>535.5</u> gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	<u>79.8</u> gal.	Total Quantity (5 Times Losses)	TQL <u>0</u> gal.
Total Development Volume Required = TQV+TQL			<u>gal.</u>
Type of Pump	<u>Centrifugal</u>	Total Quantity of Water Removed	<u>535.5</u> gal.
Average Pump Rate	<u>120</u> gal/hr.	Time Required	<u>4.45</u> hrs.
Est. Recharge Rate	<u>gal/hr.</u>	Water Quality	<u>clear</u>
pH	Conductivity	Temperature (Degrees F)	
<u></u>	<u></u>	<u></u>	
Remarks: <u></u>			
<u></u>			
<u></u>			

Well Development Record

Well Number	MW1M	Date of Installation	6/26/97
Site Geologist	A. E. Sciulli	Date of Development	7/03/97
Static Water Level From Top of Casing	Before Development 13.70 ft.	24 Hrs. After Development	Date 7/03/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 60 ft.	24 Hrs. After Development	Date 7/03/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	46.3 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	32.4 gal.	Total Quantity (5 Equivalent Volumes)	TQV 601.9 gal.
Quantity of Fluid in Annulus [12*c*pi(d^2-b^2)*0.0043*0.30]	87.98 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			602 gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	560 gal.
Average Pump Rate	960 gal/hr.	Time Required	.58 hrs.
Est. Recharge Rate	+960 gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
7.1	440	64	
Remarks:	Development water pumped to holding tank.		

Well Development Record

Well Number	MW2M	Date of Installation	6/27/97
Site Geologist	A. E. Sciulli	Date of Development	7/03/97
Static Water Level From Top of Casing	Before Development 14.0 ft.	24 Hrs. After Development	Date 7/03/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 62 ft.	24 Hrs. After Development	Date 7/03/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	48 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	33.6 gal.	Total Quantity (5 Equivalent Volumes)	TQV 490 gal.
Quantity of Fluid in Annulus [12*c*pi(d^2-b^2)*0.0043*0.30]	91.2 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			490 gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	435 gal.
Average Pump Rate	870 gal/hr.	Time Required	.50 hrs.
Est. Recharge Rate	+870 gal/hr.	Water Quality	clear
pH	6.9	Conductivity	430
		Temperature (Degrees F)	64
Remarks:	Development water pumped to holding tank.		

Well Development Record

Well Number	MW3M	Date of Installation	7/02/97
Site Geologist	A. E. Sciulli	Date of Development	7/03/97
Static Water Level From Top of Casing	Before Development 16.95 ft.	24 Hrs. After Development	Date 7/03/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 57 ft.	24 Hrs. After Development	Date 7/03/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	40.05 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	28 gal.	Total Quantity (5 Equivalent Volumes)	TQV 520.7 gal.
Quantity of Fluid in Annulus [12*c*pi*(d^2-b^2)*0.0043*0.30]	76.13 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			520 gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	210 gal.
Average Pump Rate	420 gal/hr.	Time Required	.5 hrs.
Est. Recharge Rate	+420 gal/hr.	Water Quality	clear
pH	6.6	Conductivity	440
		Temperature (Degrees F)	62

Remarks: Development water pumped to holding tank.

Well Development Record

Well Number	MW1S	Date of Installation	7/08/97
Site Geologist	A. E. Sciulli	Date of Development	7/11/97
Static Water Level From Top of Casing	Before Development 9.08 ft.	24 Hrs. After Development	Date 7/11/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 14 ft.	24 Hrs. After Development	Date 7/11/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	4.92 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	3.44 gal.	Total Quantity (5 Equivalent Volumes)	TQV 64 gal.
Quantity of Fluid in Annulus [12*c*pi(d^2-b^2)*0.0043*0.30]	9.35 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			64 gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	15 gal.
Average Pump Rate	30 gal/hr.	Time Required	.5 hrs.
Est. Recharge Rate	+30 gal/hr.	Water Quality	clear
pH	7.3	Conductivity	880
		Temperature (Degrees F)	76

Remarks: Development water pumped to holding tank.

L. Robert Kimball & Associates, Inc.
615 West Highland Avenue
Ebensburg, PA 15931

Ph.: (814) 472-7700
Fax: (814) 472-7712

Well Development Record

Well Number	MW2S	Date of Installation	7/08/97
Site Geologist	A. E. Sciulli	Date of Development	7/11/97
Static Water Level From Top of Casing	Before Development 13.6 ft.	24 Hrs. After Development	Date 7/11/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 16 ft.	24 Hrs. After Development	Date 7/11/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	2.4 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	1.68 gal.	Total Quantity (5 Equivalent Volumes)	TQV 31.2 gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	4.56 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL		31.2	gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	8 gal.
Average Pump Rate	15 gal/hr.	Time Required	.53 hrs.
Est. Recharge Rate	+15 gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
9.7	720	66	

Remarks: Development water pumped to holding tank.

Well Development Record

Well Number	<u>MW3S</u>	Date of Installation	<u>7/07/97</u>
Site Geologist	<u>A. E. Sciulli</u>	Date of Development	<u>7/11/97</u>
Static Water Level From Top of Casing	Before Development <u>11.7</u> ft.	24 Hrs. After Development _____ ft.	Date <u>7/11/97</u>
Depth to Sediment	Before Development <u>N/A</u> ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development <u>16</u> ft.	24 Hrs. After Development <u>16</u> ft.	Date <u>7/11/97</u>
Height of Casing Above Ground Surface	<u>FLUSH MOUNT</u> ft.		
Quantity of Mud/Water	Lost During Drilling	<u>0</u> gal.	
	Removed Prior to Well Insertion	<u>0</u> gal.	
	Lost During Displacement	<u>0</u> gal.	
	Added During Filter Pack Placement	<u>0</u> gal.	
a) Water Column Height	<u>4.3</u> ft.	b) Well Radius	<u>2.0</u> in.
c) Screen Length	<u>10.0</u> ft.	d) Borehole Radius	<u>4.0</u> in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	<u>3.01</u> gal.	Total Quantity (5 Equivalent Volumes)	TQV <u>55.9</u> gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	<u>8.17</u> gal.	Total Quantity (5 Times Losses)	TQL <u>0</u> gal.
Total Development Volume Required = TQV+TQL		<u>56</u>	gal.
Type of Pump	<u>Centrifugal</u>	Total Quantity of Water Removed	<u>35</u> gal.
Average Pump Rate	<u>90</u> gal/hr.	Time Required	<u>.39</u> hrs.
Est. Recharge Rate	<u>+90</u> gal/hr.	Water Quality	<u>clear</u>
pH	<u>7.2</u>	Conductivity	<u>250</u>
		Temperature (Degrees F)	<u>64</u>
Remarks: <u>Development water pumped to holding tank.</u>			

Well Development Record

Well Number	MW4S	Date of Installation	7/08/97
Site Geologist	A. E. Sciulli	Date of Development	7/11/97
Static Water Level From Top of Casing	Before Development 5.8 ft.	24 Hrs. After Development	Date 7/11/97
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development	Date
Depth to Well Bottom	Before Development 14 ft.	24 Hrs. After Development	Date 7/11/97
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	8.2 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	5.74 gal.	Total Quantity (5 Equivalent Volumes)	TQV 106.6 gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	15.58 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			106.6 gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	16 gal.
Average Pump Rate	15 gal/hr.	Time Required	1.06 hrs.
Est. Recharge Rate	+15 gal/hr.	Water Quality	clear
pH	6.9	Conductivity	320
		Temperature (Degrees F)	76
Remarks:	Development water pumped to holding tank.		

Well Development Record

Well Number	MW55	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development	_____ ft.
		Date	_____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development	_____ ft.
		Date	_____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development	_____ ft.
		Date	_____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL			_____ gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear _____
pH	Conductivity	Temperature (Degrees F)	_____
Remarks:			

Well Development Record

Well Number	MW6S	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL			_____ gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
_____	_____	_____	
Remarks:			

Well Development Record

Well Number	MW7S	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL			_____ gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear _____
pH	Conductivity	Temperature (Degrees F)	
_____	_____	_____	
Remarks: _____ _____ _____			

Well Development Record

Well Number	MW8S	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [12*c*pi(d^2-b^2)*0.0043*0.30]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL		_____ gal.	
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear _____
pH	Conductivity	Temperature (Degrees F)	
_____	_____	_____	
Remarks:			

Well Development Record

Well Number	MW9S	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL		_____ gal.	
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
_____	_____	_____	
Remarks:			

Well Development Record

Well Number	MW9D	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Sediment	Before Development N/A _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Depth to Well Bottom	Before Development _____ ft.	24 Hrs. After Development _____ ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT _____ ft.		
Quantity of Mud/Water	Lost During Drilling	0 _____ gal.	
	Removed Prior to Well Insertion	0 _____ gal.	
	Lost During Displacement	0 _____ gal.	
	Added During Filter Pack Placement	0 _____ gal.	
a) Water Column Height	_____ ft.	b) Well Radius	2.0 _____ in.
c) Screen Length	10.0 _____ ft.	d) Borehole Radius	4.0 _____ in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	_____ gal.	Total Quantity (5 Equivalent Volumes)	TQV _____ gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	_____ gal.	Total Quantity (5 Times Losses)	TQL 0 _____ gal.
Total Development Volume Required = TQV+TQL		_____ gal.	
Type of Pump	Centrifugal	Total Quantity of Water Removed	_____ gal.
Average Pump Rate	_____ gal/hr.	Time Required	_____ hrs.
Est. Recharge Rate	_____ gal/hr.	Water Quality	clear _____
pH	Conductivity	Temperature (Degrees F)	
_____	_____	_____	
Remarks:			

Well Development Record

Well Number	MW10S	Date of Installation	
Site Geologist	A. E. Sciulli	Date of Development	
Static Water Level From Top of Casing	Before Development ft.	24 Hrs. After Development ft.	Date _____
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development ft.	Date _____
Depth to Well Bottom	Before Development ft.	24 Hrs. After Development ft.	Date _____
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	gal.	Total Quantity (5 Equivalent Volumes)	TQV gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL		gal.	
Type of Pump	Centrifugal	Total Quantity of Water Removed	gal.
Average Pump Rate	gal/hr.	Time Required	hrs.
Est. Recharge Rate	gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
Remarks:			

Well Development Record

Well Number	MW11S	Date of Installation	12/27/99
Site Geologist	A. E. Sciulli	Date of Development	12/29/99
Static Water Level From Top of Casing	Before Development 14.2 ft.	24 Hrs. After Development 13.2 ft.	Date 12/29/99
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development N/A ft.	Date N/A
Depth to Well Bottom	Before Development 21 ft.	24 Hrs. After Development 21 ft.	Date 12/29/99
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	7.8 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [12*a*pi*b^2*0.0043]	4.4 gal.	Total Quantity (5 Equivalent Volumes)	TQV 96 gal.
Quantity of Fluid in Annulus [12*c*pi*(d^2-b^2)*0.0043*0.30]	14.8 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	96 gal.
Average Pump Rate	60 gal/hr.	Time Required	1.6 hrs.
Est. Recharge Rate	gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
Remarks:			

L. Robert Kimball & Associates, Inc.
615 West Highland Avenue
Ebensburg, PA 15931

Ph.: (814) 472-7700
Fax: (814) 472-7712

Well Development Record

Well Number	MW11M	Date of Installation	12/28/99
Site Geologist	A. E. Sciulli	Date of Development	12/29/99
Static Water Level From Top of Casing	Before Development 14 ft.	24 Hrs. After Development 13.3 ft.	Date 12/29/00
Depth to Sediment	Before Development N/A ft.	24 Hrs. After Development N/A ft.	Date N/A
Depth to Well Bottom	Before Development 55.6 ft.	24 Hrs. After Development 56 ft.	Date 12/29/00
Height of Casing Above Ground Surface	FLUSH MOUNT ft.		
Quantity of Mud/Water	Lost During Drilling	0 gal.	
	Removed Prior to Well Insertion	0 gal.	
	Lost During Displacement	0 gal.	
	Added During Filter Pack Placement	0 gal.	
a) Water Column Height	42 ft.	b) Well Radius	2.0 in.
c) Screen Length	10.0 ft.	d) Borehole Radius	4.0 in.
Quantity of Fluid Standing in Well [$12 \cdot a \cdot \pi \cdot b^2 \cdot 0.0043$]	27.3 gal.	Total Quantity (5 Equivalent Volumes)	TQV 535.5 gal.
Quantity of Fluid in Annulus [$12 \cdot c \cdot \pi \cdot (d^2 - b^2) \cdot 0.0043 \cdot 0.30$]	79.8 gal.	Total Quantity (5 Times Losses)	TQL 0 gal.
Total Development Volume Required = TQV+TQL			gal.
Type of Pump	Centrifugal	Total Quantity of Water Removed	535.5 gal.
Average Pump Rate	120 gal/hr.	Time Required	4.45 hrs.
Est. Recharge Rate	gal/hr.	Water Quality	clear
pH	Conductivity	Temperature (Degrees F)	
Remarks:			

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
195	190	2030.225	1	1
0	240	-7185.407	1001	101
5	240	-7568.141	1001	102
10	240	-6806.445	1001	103
15	240	-9157.615	1001	104
20	240	-17088.48	1001	105
25	240	-11605.23	1001	106
30	240	-11876.68	1001	107
35	240	-8793.344	1001	108
40	240	-8291.825	1001	109
45	240	-9057.499	1001	110
50	240	-7515.078	1001	111
55	240	-5728.003	1001	112
60	240	-5095.414	1001	113
65	240	-2758.253	1001	114
70	240	-4470.932	1001	115
75	240	-4266.9	1001	116
80	240	-4905.375	1001	117
85	240	-9363.112	1001	118
90	240	-9207.389	1001	119
95	240	-4440.366	1001	120
100	240	-622.589	1001	121
105	240	-551.574	1001	122
110	240	-887.826	1001	123
115	240	-1447.199	1001	124
120	240	-2505.745	1001	125
125	240	-1541.456	1001	126
130	240	-2370.037	1001	127
135	240	-626.813	1001	128
140	240	-505.267	1001	129
145	240	-358.701	1001	130
150	240	-98.609	1001	131
155	240	195.712	1001	132
160	240	471.538	1001	133
165	240	700.68	1001	134
170	240	783.937	1001	135
175	240	876.33	1001	136
180	240	1093.975	1001	137
185	240	1120.915	1001	138
190	240	1081.081	1001	139
195	240	1115.07	1001	140
195	230	787.622	1002	140
190	230	763.548	1002	139
185	230	783.675	1002	138
180	230	831.923	1002	137
175	230	905.154	1002	136
170	230	920.013	1002	135
165	230	910.004	1002	134
160	230	906.929	1002	133
155	230	839.77	1002	132
150	230	786.091	1002	131
145	230	607.14	1002	130
140	230	329.489	1002	129
135	230	185.974	1002	128
130	230	150.772	1002	127
125	230	291.107	1002	126
120	230	374.535	1002	125
115	230	273.521	1002	124
110	230	109.347	1002	123
105	230	115.486	1002	122
100	230	380.86	1002	121
95	230	726.456	1002	120
90	230	885.377	1002	119
85	230	611.243	1002	118
80	230	218.72	1002	117
75	230	-39.674	1002	116

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
70	230	-231.179	1002	115
65	230	-1591.931	1002	114
60	230	-1766.431	1002	113
55	230	-2129.457	1002	112
50	230	-3466.131	1002	111
45	230	-3976.177	1002	110
40	230	-2829.766	1002	109
35	230	-2447.615	1002	108
30	230	-2930.596	1002	107
25	230	-3698.847	1002	106
20	230	-8933.095	1002	105
15	230	-8411.673	1002	104
10	230	-9719.515	1002	103
5	230	-12700.57	1002	102
0	230	-14446.65	1002	101
0	220	-2251.816	1003	101
5	220	-3189.672	1003	102
10	220	-3444.038	1003	103
15	220	-3273.083	1003	104
20	220	-2703.673	1003	105
25	220	-2029.503	1003	106
30	220	-1373.26	1003	107
35	220	-746.036	1003	108
40	220	-220.295	1003	109
45	220	244.828	1003	110
50	220	739.871	1003	111
55	220	1210.728	1003	112
60	220	1450.274	1003	113
65	220	1469.529	1003	114
70	220	1301.343	1003	115
75	220	1191.586	1003	116
80	220	997.665	1003	117
85	220	857.354	1003	118
90	220	776.375	1003	119
95	220	590.493	1003	120
100	220	364.211	1003	121
105	220	320.234	1003	122
110	220	455.56	1003	123
115	220	641.787	1003	124
120	220	701.219	1003	125
125	220	438.363	1003	126
130	220	127.629	1003	127
135	220	-43.929	1003	128
140	220	51.995	1003	129
145	220	395.923	1003	130
150	220	732.643	1003	131
155	220	805.536	1003	132
160	220	875.966	1003	133
165	220	1003.098	1003	134
170	220	1032.289	1003	135
175	220	879.125	1003	136
180	220	730.845	1003	137
185	220	611.421	1003	138
190	220	577.671	1003	139
195	220	582.088	1003	140
195	210	857.763	1004	140
190	210	936.861	1004	139
185	210	1018.062	1004	138
180	210	1100.463	1004	137
175	210	1023.463	1004	136
170	210	877.963	1004	135
165	210	759.563	1004	134
160	210	722.764	1004	133
155	210	763.565	1004	132
150	210	902.565	1004	131
145	210	957.163	1004	130

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
140	210	852.263	1004	129
135	210	892.765	1004	128
130	210	1179.765	1004	127
125	210	1492.064	1004	126
120	210	1503.364	1004	125
115	210	1092.965	1004	124
110	210	698.964	1004	123
105	210	458.567	1004	122
100	210	456.665	1004	121
95	210	813.165	1004	120
90	210	1298.966	1004	119
85	210	1973.765	1004	118
80	210	2959.666	1004	117
75	210	4608.568	1004	116
70	210	522.366	1004	115
65	210	710.768	1004	114
60	210	197.866	1004	113
55	210	-297.733	1004	112
50	210	4143.367	1004	111
45	210	2400.168	1004	110
40	210	1281.767	1004	109
35	210	534.57	1004	108
30	210	-26.133	1004	107
25	210	-487.332	1004	106
20	210	-802.031	1004	105
15	210	-990.431	1004	104
10	210	-1090.132	1004	103
5	210	-1350.429	1004	102
0	210	-7791.929	1004	101
0	200	-11241.23	1005	101
5	200	-1135.628	1005	102
10	200	-728.026	1005	103
15	200	-513.424	1005	104
20	200	-346.528	1005	105
25	200	-42.926	1005	106
30	200	492.775	1005	107
35	200	1036.373	1005	108
40	200	1932.373	1005	109
45	200	3364.574	1005	110
50	200	1702.975	1005	111
55	200	-1430.326	1005	112
60	200	-5127.126	1005	113
65	200	-1594.026	1005	114
70	200	-133.626	1005	115
75	200	3005.675	1005	116
80	200	4071.078	1005	117
85	200	2951.676	1005	118
90	200	2350.777	1005	119
95	200	2108.578	1005	120
100	200	1949.176	1005	121
105	200	1808.278	1005	122
110	200	1647.077	1005	123
115	200	1472.579	1005	124
120	200	1346.579	1005	125
125	200	1190.079	1005	126
130	200	1033.978	1005	127
135	200	964.279	1005	128
140	200	936.978	1005	129
145	200	826.175	1005	130
150	200	706.08	1005	131
155	200	640.478	1005	132
160	200	680.78	1005	133
165	200	885.179	1005	134
170	200	1168.281	1005	135
175	200	1387.179	1005	136
180	200	1494.082	1005	137

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
185	200	1486.679	1005	138
190	200	1449.48	1005	139
195	200	1420.48	1005	140
195	190	2023.286	1006	140
190	190	2144.985	1006	139
185	190	2295.585	1006	138
180	190	2268.185	1006	137
175	190	1955.588	1006	136
170	190	1485.685	1006	135
165	190	1122.287	1006	134
160	190	903.487	1006	133
155	190	746.885	1006	132
150	190	742.987	1006	131
145	190	783.589	1006	130
140	190	893.286	1006	129
135	190	922.589	1006	128
130	190	891.886	1006	127
125	190	839.687	1006	126
120	190	824.886	1006	125
115	190	967.287	1006	124
110	190	1251.687	1006	123
105	190	1638.688	1006	122
100	190	2039.09	1006	121
95	190	2356.287	1006	120
90	190	2584.59	1006	119
85	190	3027.688	1006	118
80	190	3828.989	1006	117
75	190	4931.388	1006	116
70	190	4416.791	1006	115
65	190	-2748.908	1006	114
60	190	-528.908	1006	113
55	190	2109.791	1006	112
50	190	4812.889	1006	111
45	190	3525.19	1006	110
40	190	2494.489	1006	109
35	190	1784.292	1006	108
30	190	1157.39	1006	107
25	190	565.691	1006	106
20	190	396.593	1006	105
15	190	295.388	1006	104
10	190	-7.309	1006	103
5	190	-1580.207	1006	102
0	190	-2596.809	1006	101
195	180	2675.554	1007	140
190	180	2526.355	1007	139
185	180	2370.273	1007	138
180	180	2164.978	1007	137
175	180	1839.775	1007	136
170	180	1491.978	1007	135
165	180	1217.479	1007	134
160	180	1053.875	1007	133
155	180	940.076	1007	132
150	180	898.577	1007	131
145	180	919.479	1007	130
140	180	991.479	1007	129
135	180	986.376	1007	128
130	180	880.077	1007	127
125	180	772.679	1007	126
120	180	744.277	1007	125
115	180	839.878	1007	124
110	180	1100.179	1007	123
105	180	1532.48	1007	122
100	180	1926.68	1007	121
95	180	2171.68	1007	120
90	180	2240.578	1007	119
85	180	2329.078	1007	118

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
80	180	2698.276	1007	117
75	180	3084.579	1007	116
70	180	3427.278	1007	115
65	180	3687.778	1007	114
60	180	3793.88	1007	113
55	180	3645.878	1007	112
50	180	3450.779	1007	111
45	180	3347.779	1007	110
40	180	3182.482	1007	109
35	180	2649.182	1007	108
30	180	2012.879	1007	107
25	180	1575.483	1007	106
20	180	1390.78	1007	105
15	180	1082.381	1007	104
10	180	833.581	1007	103
5	180	800.28	1007	102
0	180	-7243.019	1007	101
0	170	-557.015	1008	101
5	170	904.083	1008	102
10	170	1221.984	1008	103
15	170	1573.185	1008	104
20	170	1728.385	1008	105
25	170	1785.885	1008	106
30	170	2016.885	1008	107
35	170	2507.784	1008	108
40	170	3043.784	1008	109
45	170	3140.384	1008	110
50	170	2984.386	1008	111
55	170	2960.187	1008	112
60	170	3019.887	1008	113
65	170	3029.285	1008	114
70	170	3049.086	1008	115
75	170	3077.283	1008	116
80	170	2786.086	1008	117
85	170	2457.587	1008	118
90	170	2285.989	1008	119
95	170	2215.388	1008	120
100	170	2107.886	1008	121
105	170	1949.987	1008	122
110	170	1790.786	1008	123
115	170	1641.189	1008	124
120	170	1493.689	1008	125
125	170	1355.088	1008	126
130	170	1256.388	1008	127
135	170	1187.386	1008	128
140	170	1116.787	1008	129
145	170	1047.389	1008	130
150	170	1061.389	1008	131
155	170	1145.787	1008	132
160	170	1219.589	1008	133
165	170	1295.489	1008	134
170	170	1388.19	1008	135
175	170	1538.589	1008	136
180	170	1799.991	1008	137
185	170	2027.191	1008	138
190	170	2240.788	1008	139
195	170	2474.089	1008	140
195	160	2139.625	1009	140
190	160	2045.114	1009	139
185	160	1940.107	1009	138
180	160	1849.197	1009	137
175	160	1723.691	1009	136
170	160	1608.087	1009	135
165	160	1491.979	1009	134
160	160	1552.572	1009	133
155	160	1533.36	1009	132

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
150	160	1325.558	1009	131
145	160	1171.45	1009	130
140	160	1185.644	1009	129
135	160	1271.13	1009	128
130	160	1349.422	1009	127
125	160	1492.115	1009	126
120	160	1622.109	1009	125
115	160	1698.603	1009	124
110	160	1777.497	1009	123
105	160	1820.887	1009	122
100	160	1838.083	1009	121
95	160	1890.28	1009	120
90	160	1972.673	1009	119
85	160	2084.468	1009	118
80	160	2283.762	1009	117
75	160	2411.349	1009	116
70	160	2326.542	1009	115
65	160	2236.836	1009	114
60	160	2098.53	1009	113
55	160	2028.523	1009	112
50	160	1998.811	1009	111
45	160	1937.905	1009	110
40	160	1628.591	1009	109
35	160	1323.379	1009	108
30	160	1471.679	1009	107
25	160	1316.467	1009	106
20	160	1019.164	1009	105
15	160	866.856	1009	104
10	160	761.945	1009	103
5	160	477.542	1009	102
0	160	-9596.065	1009	101
0	150	-206.04	1010	101
5	150	321.555	1010	102
10	150	549.343	1010	103
15	150	457.527	1010	104
20	150	643.022	1010	105
25	150	970.217	1010	106
30	150	961.614	1010	107
35	150	936.707	1010	108
40	150	943.003	1010	109
45	150	1064.399	1010	110
50	150	1295.189	1010	111
55	150	1348.883	1010	112
60	150	1320.377	1010	113
65	150	1230.372	1010	114
70	150	1059.463	1010	115
75	150	967.054	1010	116
80	150	919.747	1010	117
85	150	871.344	1010	118
90	150	798.839	1010	119
95	150	745.131	1010	120
100	150	729.727	1010	121
105	150	835.213	1010	122
110	150	990.815	1010	123
115	150	1016.008	1010	124
120	150	945.094	1010	125
125	150	814.69	1010	126
130	150	680.179	1010	127
135	150	599.479	1010	128
140	150	708.472	1010	129
145	150	848.365	1010	130
150	150	1161.155	1010	131
155	150	1777.344	1010	132
160	150	2580.14	1010	133
165	150	3030.431	1010	134
170	150	3251.022	1010	135

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
175	150	3252.72	1010	136
180	150	2812.007	1010	137
185	150	2276.502	1010	138
190	150	2384.496	1010	139
195	150	3368.585	1010	140
195	140	2548.09	1011	140
190	140	2074.582	1011	139
185	140	2195.775	1011	138
180	140	3256.667	1011	137
175	140	4053.059	1011	136
170	140	3714.453	1011	135
165	140	2710.846	1011	134
160	140	1392.84	1011	133
155	140	163.63	1011	132
150	140	-1119.177	1011	131
145	140	-170.082	1011	130
140	140	-171.388	1011	129
135	140	-266.093	1011	128
130	140	-227.701	1011	127
125	140	-91.111	1011	126
120	140	146.782	1011	125
115	140	439.871	1011	124
110	140	551.666	1011	123
105	140	593.256	1011	122
100	140	530.053	1011	121
95	140	249.945	1011	120
90	140	-68.662	1011	119
85	140	-286.271	1011	118
80	140	-455.88	1011	117
75	140	-407.289	1011	116
70	140	-222.995	1011	115
65	140	-103.699	1011	114
60	140	-97.306	1011	113
55	140	-141.337	1011	112
50	140	-229.837	1011	111
45	140	-319.944	1011	110
40	140	-349.551	1011	109
35	140	-205.854	1011	108
30	140	-33.165	1011	107
25	140	33.225	1011	106
20	140	132.323	1011	105
15	140	195.414	1011	104
10	140	432.011	1011	103
5	140	283.607	1011	102
0	140	-4600.898	1011	101
255	270	-387.351	998	152
250	270	51.166	998	151
245	270	682.18	998	150
240	270	1032.298	998	149
235	270	-370.837	998	148
230	270	-1132.12	998	147
225	270	-791.686	998	146
220	270	-1917.962	998	145
160	260	-10382.59	999	133
165	260	-8911.389	999	134
170	260	-4913.569	999	135
175	260	-296.54	999	136
180	260	-1368.322	999	137
185	260	-135.803	999	138
190	260	-478.793	999	139
195	260	-553.78	999	140
200	260	-1336.75	999	141
205	260	751.972	999	142
210	260	530.483	999	143
215	260	347.495	999	144
220	260	399.908	999	145

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
225	260	745.327	999	146
230	260	480.932	999	147
235	260	466.341	999	148
240	260	524.758	999	149
245	260	431.875	999	150
250	260	188.397	999	151
255	260	-58.393	999	152
255	250	-5.39	1000	152
250	250	140.731	1000	151
245	250	292.836	1000	150
240	250	434.655	1000	149
235	250	432.269	1000	148
230	250	422.49	1000	147
225	250	444.41	1000	146
220	250	492.228	1000	145
215	250	631.439	1000	144
210	250	859.55	1000	143
205	250	964.562	1000	142
200	250	885.576	1000	141
195	250	609.588	1000	140
190	250	580.704	1000	139
185	250	772.118	1000	138
180	250	790.028	1000	137
175	250	845.04	1000	136
170	250	849.357	1000	135
165	250	790.767	1000	134
160	250	356.888	1000	133
155	250	-3017.478	1000	132
150	250	-2347.26	1000	131
145	250	-2768.749	1000	130
140	250	-5502.723	1000	129
135	250	-3224.502	1000	128
130	250	-9086.273	1000	127
195	240	1093.818	1001	140
200	240	1234.431	1001	141
205	240	1314.844	1001	142
210	240	1146.657	1001	143
215	240	733.269	1001	144
220	240	471.088	1001	145
225	240	393.599	1001	146
230	240	340.11	1001	147
235	240	268.12	1001	148
240	240	186.13	1001	149
245	240	180.941	1001	150
250	240	172.752	1001	151
255	240	80.956	1001	152
255	230	107.306	1002	152
250	230	226.226	1002	151
245	230	343.738	1002	150
240	230	613.248	1002	149
235	230	737.662	1002	148
230	230	643.768	1002	147
225	230	581.996	1002	146
220	230	501.508	1002	145
215	230	535.717	1002	144
210	230	744.438	1002	143
205	230	881.044	1002	142
200	230	897.959	1002	141
195	230	775.086	1002	140
195	220	537.958	1003	140
200	220	485.279	1003	141
205	220	475.455	1003	142
210	220	482.857	1003	143
215	220	534.953	1003	144
220	220	745.054	1003	145
225	220	975.951	1003	146

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
230	220	1229.95	1003	147
235	220	1375.174	1003	148
240	220	1314.35	1003	149
245	220	1027.046	1003	150
250	220	698.344	1003	151
255	220	360.463	1003	152
255	210	396.703	1004	152
250	210	671.503	1004	151
245	210	999.999	1004	150
240	210	1374.998	1004	149
235	210	1594.297	1004	148
230	210	1471.097	1004	147
225	210	1263.193	1004	146
220	210	1173.89	1004	145
215	210	1082.592	1004	144
210	210	911.29	1004	143
205	210	694.488	1004	142
200	210	641.588	1004	141
195	210	761.307	1004	140
195	200	1387.457	1005	140
200	200	1245.956	1005	141
205	200	1128.154	1005	142
210	200	1141.055	1005	143
215	200	1191.753	1005	144
220	200	1172.172	1005	145
225	200	1153.348	1005	146
230	200	1198.25	1005	147
235	200	1151.049	1005	148
240	200	918.344	1005	149
245	200	630.745	1005	150
250	200	436.066	1005	151
255	200	364.641	1005	152
255	190	248.367	1006	152
250	190	471.468	1006	151
245	190	635.365	1006	150
240	190	763.563	1006	149
235	190	882.561	1006	148
230	190	912.962	1006	147
225	190	945.682	1006	146
220	190	1074.757	1006	145
215	190	1364.458	1006	144
210	190	1641.355	1006	143
205	190	1924.954	1006	142
200	190	2101.874	1006	141
195	190	2027.348	1006	140
195	180	2664.742	1007	140
200	180	2787.036	1007	141
205	180	2528.739	1007	142
210	180	1926.636	1007	143
215	180	1472.133	1007	144
220	180	1267.132	1007	145
225	180	1235.732	1007	146
230	180	1263.329	1007	147
235	180	1184.429	1007	148
240	180	969.026	1007	149
245	180	723.927	1007	150
250	180	552.948	1007	151
255	180	465.023	1007	152
255	170	1003.288	1008	152
250	170	1011.388	1008	151
245	170	1086.188	1008	150
240	170	1354.385	1008	149
235	170	1625.759	1008	148
230	170	1803.156	1008	147
225	170	1802.557	1008	146
220	170	1731.356	1008	145

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
215	170	1751.253	1008	144
210	170	2011.876	1008	143
205	170	2484.352	1008	142
200	170	2749.748	1008	141
195	170	2574.348	1008	140
195	160	2106.827	1009	140
200	160	2136.621	1009	141
205	160	2253.12	1009	142
210	160	2572.72	1009	143
215	160	2495.843	1009	144
220	160	2289.82	1009	145
225	160	2219.417	1009	146
230	160	2112.016	1009	147
235	160	1875.214	1009	148
240	160	1530.713	1009	149
245	160	1195.632	1009	150
250	160	926.609	1009	151
255	160	732.81	1009	152
255	150	1117.777	1010	152
250	150	1511.072	1010	151
245	150	2077.774	1010	150
240	150	2723.273	1010	149
235	150	3379.192	1010	148
230	150	4081.868	1010	147
225	150	4264.968	1010	146
220	150	3860.864	1010	145
215	150	3409.964	1010	144
210	150	2985.383	1010	143
205	150	2956.961	1010	142
200	150	3417.556	1010	141
195	150	3059.656	1010	140
190	150	2243.154	1010	139
195	140	2544.244	1011	140
200	140	2936.84	1011	141
205	140	2890.64	1011	142
210	140	3089.939	1011	143
215	140	3889.938	1011	144
220	140	-660.866	1011	145
225	140	686.733	1011	146
230	140	662.732	1011	147
235	140	-227.849	1011	148
240	140	3529.525	1011	149
245	140	2679.625	1011	150
250	140	1971.925	1011	151
255	140	1440.223	1011	152
255	130	1251.975	1012	152
250	130	1314.71	1012	151
245	130	1361.802	1012	150
240	130	1748.542	1012	149
235	130	2517.965	1012	148
230	130	3237.591	1012	147
225	130	3533.47	1012	146
220	130	3229.905	1012	145
215	130	2733.233	1012	144
210	130	2237.735	1012	143
205	130	1859.299	1012	142
200	130	1588.23	1012	141
195	130	1362.968	1012	140
195	120	1370.51	1013	140
200	120	1000.758	1013	141
205	120	1246.581	1013	142
210	120	1489.762	1013	143
215	120	1602.026	1013	144
220	120	1633.048	1013	145
225	120	1752.693	1013	146
230	120	1772.114	1013	147

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Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
235	120	1460.335	1013	148
240	120	959.818	1013	149
245	120	562.086	1013	150
250	120	604.368	1013	151
255	120	769.388	1013	152
260	120	969.308	1013	153
265	120	822.29	1013	154
270	120	756.051	1013	155
275	120	733.472	1013	156
280	120	797.39	1013	157
285	120	803.308	1013	158
290	120	642.229	1013	159
295	120	265.057	1013	160
295	110	-6723.669	1014	160
290	110	148.661	1014	159
285	110	563.073	1014	158
280	110	716.938	1014	157
275	110	881.46	1014	156
270	110	1473.684	1014	155
265	110	2823.238	1014	154
260	110	2144.208	1014	153
255	110	26.738	1014	152
250	110	1704.378	1014	151
245	110	508.798	1014	150
240	110	1290.162	1014	149
235	110	1543.709	1014	148
230	110	1454.634	1014	147
225	110	1261.963	1014	146
220	110	1000.395	1014	145
215	110	922.585	1014	144
210	110	897.447	1014	143
205	110	782.769	1014	142
200	110	639.892	1014	141
195	110	781.315	1014	140
195	100	551	1015	140
200	100	338.131	1015	141
205	100	362.853	1015	142
210	100	409.074	1015	143
215	100	565.096	1015	144
220	100	918.182	1015	145
225	100	1072.505	1015	146
230	100	1179.582	1015	147
235	100	1523.514	1015	148
240	100	2430.982	1015	149
245	100	3370.02	1015	150
250	100	641.992	1015	151
255	100	1832.68	1015	152
260	100	2353.764	1015	153
265	100	3399.523	1015	154
270	100	1956.944	1015	155
275	100	929.159	1015	156
280	100	497.518	1015	157
285	100	183.641	1015	158
290	100	-120.242	1015	159
295	100	-404.321	1015	160
300	100	-5246.642	1015	161
305	100	-4040.362	1015	162
310	100	-4880.003	1015	163
310	90	-93.216	1016	163
305	90	-298.388	1016	162
300	90	-261.664	1016	161
295	90	-280.431	1016	160
290	90	-159.341	1016	159
285	90	22.343	1016	158
280	90	310.465	1016	157
275	90	663.815	1016	156

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
270	90	1240.123	1016	155
265	90	2052.007	1016	154
260	90	3034.332	1016	153
255	90	3313.113	1016	152
250	90	3565.245	1016	151
245	90	3071.053	1016	150
240	90	2480.158	1016	149
235	90	1873.879	1016	148
230	90	1265.901	1016	147
225	90	897.007	1016	146
220	90	599.166	1016	145
215	90	320.589	1016	144
210	90	77.712	1016	143
205	90	-35.263	1016	142
200	90	-148.135	1016	141
195	90	-285.712	1016	140
195	80	357.765	1017	140
200	80	-242.339	1017	141
205	80	-391.516	1017	142
210	80	-33.295	1017	143
215	80	226.727	1017	144
220	80	265.768	1017	145
225	80	349.057	1017	146
230	80	712.981	1017	147
235	80	1157.738	1017	148
240	80	1476.782	1017	149
245	80	1537.806	1017	150
250	80	918.25	1017	151
255	80	97.712	1017	152
260	80	-94.923	1017	153
265	80	101.219	1017	154
270	80	178.947	1017	155
275	80	101.572	1017	156
280	80	16.298	1017	157
285	80	-106.915	1017	158
290	80	-297.841	1017	159
295	80	-315.72	1017	160
300	80	-297.695	1017	161
305	80	-536.173	1017	162
310	80	-4195.767	1017	163
310	70	-7696.819	1018	163
305	70	-1030.996	1018	162
300	70	-739.886	1018	161
295	70	-616.825	1018	160
290	70	-440.16	1018	159
285	70	-86.563	1018	158
280	70	-91.844	1018	157
275	70	-250.117	1018	156
270	70	-477.131	1018	155
265	70	-1322.513	1018	154
260	70	-5697.378	1018	153
255	70	-5376.328	1018	152
250	70	-1486.809	1018	151
245	70	676.163	1018	150
240	70	995.141	1018	149
235	70	950.967	1018	148
230	70	769.99	1018	147
225	70	805.268	1018	146
220	70	953.644	1018	145
215	70	895.821	1018	144
210	70	597	1018	143
205	70	256.27	1018	142
200	70	645.125	1018	141
195	70	1700.501	1018	140
195	60	517.127	1019	140
200	60	-57.32	1019	141

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
205	60	-41.848	1019	142
210	60	303.397	1019	143
215	60	639.434	1019	144
220	60	1039.992	1019	145
225	60	1370.464	1019	146
230	60	1427.742	1019	147
235	60	1246.723	1019	148
240	60	1134.374	1019	149
245	60	1502.051	1019	150
250	60	1265.124	1019	151
255	60	1278.4	1019	152
260	60	935.501	1019	153
265	60	319.416	1019	154
270	60	305.091	1019	155
275	60	539.158	1019	156
280	60	451.411	1019	157
285	60	-178.052	1019	158
290	60	-988.106	1019	159
295	60	-8220.365	1019	160
300	60	-8012.238	1019	161
305	60	-8184.314	1019	162
310	60	-3499.64	1019	163
310	50	-10222.74	1020	163
305	50	-4575.688	1020	162
300	50	-3992.086	1020	161
295	50	-2948.885	1020	160
290	50	223.146	1020	159
285	50	172.405	1020	158
280	50	310.963	1020	157
275	50	334.467	1020	156
270	50	140.986	1020	155
265	50	139.259	1020	154
260	50	1059.537	1020	153
255	50	1707.584	1020	152
250	50	1399.528	1020	151
245	50	667.88	1020	150
240	50	69.927	1020	149
235	50	-231.18	1020	148
230	50	-321.053	1020	147
225	50	-178.978	1020	146
220	50	3.677	1020	145
215	50	331.472	1020	144
210	50	346.696	1020	143
205	50	-55.163	1020	142
200	50	-1036.837	1020	141
195	50	-1736.57	1020	140
195	40	-4669.276	1021	140
200	40	-1861.028	1021	141
205	40	2927.349	1021	142
210	40	2596.808	1021	143
215	40	2482.193	1021	144
220	40	1749.235	1021	145
225	40	1048.529	1021	146
230	40	619.885	1021	147
235	40	271.66	1021	148
240	40	201.543	1021	149
245	40	310.122	1021	150
250	40	348.583	1021	151
255	40	118.964	1021	152
260	40	-379.876	1021	153
265	40	-1459.395	1021	154
270	40	-9882.992	1021	155
275	40	-8919.71	1021	156
280	40	-1266.87	1021	157
285	40	-208.598	1021	158
290	40	641.771	1021	159

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
295	40	1473.233	1021	160
300	40	1416.711	1021	161
305	40	-75.806	1021	162
310	40	-13564.72	1021	163
310	30	-21974.99	1022	163
305	30	-7864.167	1022	162
300	30	-515.202	1022	161
295	30	-119.94	1022	160
290	30	-36.974	1022	159
285	30	-206.286	1022	158
280	30	-1324.505	1022	157
275	30	-10364.49	1022	156
270	30	-10427.43	1022	155
265	30	-5601.665	1022	154
260	30	-1005.89	1022	153
255	30	-59.633	1022	152
250	30	116.523	1022	151
245	30	-90.11	1022	150
240	30	-416.656	1022	149
235	30	-301.377	1022	148
230	30	187.488	1022	147
225	30	1072.337	1022	146
220	30	2193.912	1022	145
215	30	2564.769	1022	144
210	30	2997.581	1022	143
205	30	3834.443	1022	142
200	30	-672.792	1022	141
195	30	-6062.952	1022	140
200	20	80.538	1023	141
205	20	2074.414	1023	142
210	20	600.064	1023	143
215	20	1919.791	1023	144
220	20	1918.011	1023	145
225	20	1053.224	1023	146
230	20	76.608	1023	147
235	20	-367.248	1023	148
240	20	-413.377	1023	149
245	20	-330.698	1023	150
250	20	-343.918	1023	151
255	20	-565.044	1023	152
260	20	-873.489	1023	153
265	20	-1057.112	1023	154
270	20	-654.134	1023	155
275	20	503.738	1023	156
280	20	-824.701	1023	157
285	20	388.36	1023	158
290	20	1082.333	1023	159
295	20	387.209	1023	160
300	20	-376.914	1023	161
305	20	-10982.33	1023	162
310	20	-15747.06	1023	163
310	10	-12084.42	1024	163
305	10	-5279.348	1024	162
300	10	-1785.669	1024	161
295	10	-605.521	1024	160
290	10	198.453	1024	159
285	10	630.208	1024	158
280	10	380.963	1024	157
275	10	-96.796	1024	156
270	10	-574.109	1024	155
265	10	-691.253	1024	154
260	10	-595.811	1024	153
255	10	-351.441	1024	152
250	10	405.94	1024	151
245	10	-2116.901	1024	150
240	10	43.948	1024	149

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
235	10	53.514	1024	148
230	10	-67.807	1024	147
225	10	240.168	1024	146
220	10	624.146	1024	145
215	10	1024.217	1024	144
210	10	1507.093	1024	143
205	10	339.969	1024	142
200	10	1917.72	1024	141
200	0	-222.302	1025	141
205	0	118.366	1025	142
210	0	-143.877	1025	143
215	0	-759.904	1025	144
220	0	-1284.767	1025	145
225	0	-1410.104	1025	146
230	0	-1502.756	1025	147
235	0	-1214.201	1025	148
240	0	-1121.23	1025	149
245	0	-1277.259	1025	150
250	0	-1444.984	1025	151
255	0	-1315.027	1025	152
260	0	-1475.901	1025	153
265	0	-1374.145	1025	154
435	310	-28058.45	994	188
430	310	-26342.6	994	187
425	310	-19184.89	994	186
420	310	-16062.09	994	185
415	310	2188.219	994	184
410	310	2238.524	994	183
405	310	-25734.82	994	182
400	310	-29922.66	994	181
395	310	-24316.16	994	180
390	310	-14226.75	994	179
385	310	-4749.049	994	178
435	300	-27562.82	995	188
430	300	-24850.12	995	187
425	300	-12365.01	995	186
420	300	-798.406	995	185
415	300	2422.796	995	184
410	300	3862.254	995	183
405	300	-1411.995	995	182
400	300	-12614.19	995	181
395	300	-18028.98	995	180
390	300	-3208.179	995	179
385	300	4327.725	995	178
380	300	3260.83	995	177
375	300	2480.59	995	176
370	300	1653.839	995	175
365	300	858.445	995	174
360	300	-4935.851	995	173
355	300	-3133.25	995	172
350	300	-3586.543	995	171
345	300	-10154.74	995	170
340	300	-9797.033	995	169
335	300	-25181.83	995	168
295	290	-8115.645	996	160
300	290	-8504.487	996	161
305	290	-9134.002	996	162
310	290	-7583.026	996	163
315	290	-9073.547	996	164
320	290	-6893.678	996	165
325	290	-3322.99	996	166
330	290	-1275.415	996	167
335	290	-497.522	996	168
340	290	-48.806	996	169
345	290	191.944	996	170
350	290	278.632	996	171

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
355	290	354.82	996	172
360	290	418.207	996	173
365	290	462.195	996	174
370	290	585.586	996	175
375	290	1005.701	996	176
380	290	1750.751	996	177
385	290	2530.832	996	178
390	290	2760.32	996	179
395	290	3203.604	996	180
400	290	2923.079	996	181
405	290	2818.967	996	182
410	290	2200.153	996	183
415	290	1598.744	996	184
420	290	-1700.279	996	185
425	290	-10144.36	996	186
430	290	-25457.71	996	187
435	290	-27204.41	996	188
435	280	-25398.96	997	188
430	280	-12378.48	997	187
425	280	-11372.19	997	186
420	280	-75.912	997	185
415	280	871.786	997	184
410	280	911.112	997	183
405	280	1170.094	997	182
400	280	1873.066	997	181
395	280	1869.754	997	180
390	280	65.224	997	179
385	280	1043.886	997	178
380	280	-653.377	997	177
375	280	-17649.21	997	176
370	280	-18845.92	997	175
365	280	-7008.148	997	174
360	280	-359.945	997	173
355	280	65.505	997	172
350	280	166.491	997	171
345	280	160.177	997	170
340	280	59.465	997	169
335	280	-163.451	997	168
330	280	-550.105	997	167
325	280	-985.56	997	166
320	280	-1301.674	997	165
315	280	-1451.785	997	164
310	280	-1407.199	997	163
305	280	-1498.383	997	162
300	280	-1592.021	997	161
295	280	-1364.833	997	160
290	280	-790.647	997	159
285	280	-495.96	997	158
280	280	-431.672	997	157
275	280	-572.085	997	156
270	280	-5381.907	997	155
265	280	-4046.026	997	154
260	280	-3540.437	997	153
255	280	-6978.75	997	152
260	270	-388.928	998	153
265	270	-229.942	998	154
270	270	51.973	998	155
275	270	-107.068	998	156
280	270	-215.579	998	157
285	270	-262.79	998	158
290	270	-324.103	998	159
295	270	-367.813	998	160
300	270	-481.924	998	161
305	270	-548.41	998	162
310	270	-449.16	998	163
315	270	-324.571	998	164

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
320	270	-283.081	998	165
325	270	-261.991	998	166
330	270	-148.104	998	167
335	270	27.885	998	168
340	270	176.999	998	169
345	270	219.561	998	170
350	270	242.551	998	171
355	270	178.141	998	172
360	270	-105.671	998	173
365	270	-615.684	998	174
370	270	-8218.978	998	175
375	270	-4746.027	998	176
380	270	-583.849	998	177
385	270	386.439	998	178
390	270	-387.269	998	179
395	270	379.679	998	180
400	270	210.77	998	181
405	270	35.857	998	182
410	270	243.749	998	183
415	270	1151.219	998	184
420	270	524.17	998	185
425	270	-7288.041	998	186
430	270	-26926.25	998	187
435	270	-29720.76	998	188
435	260	-31237.21	999	188
430	260	-26464.22	999	187
425	260	-7390.438	999	186
420	260	405.038	999	185
415	260	792.452	999	184
410	260	1252.503	999	183
405	260	1104.689	999	182
400	260	1111.476	999	181
395	260	-2723.622	999	180
390	260	1379.124	999	179
385	260	1403.913	999	178
380	260	1685.588	999	177
375	260	-1937.707	999	176
370	260	-1190.552	999	175
365	260	2225.126	999	174
360	260	1204.301	999	173
355	260	692.59	999	172
350	260	399.102	999	171
345	260	304.163	999	170
340	260	261.251	999	169
335	260	277.338	999	168
330	260	223.626	999	167
325	260	13.714	999	166
320	260	-204.099	999	165
315	260	-168.684	999	164
310	260	34.877	999	163
305	260	192.658	999	162
300	260	383.643	999	161
295	260	335.83	999	160
290	260	131.417	999	159
285	260	9.132	999	158
280	260	-1.709	999	157
275	260	-108.919	999	156
270	260	-142.334	999	155
265	260	-233.245	999	154
260	260	-251.654	999	153
260	250	-146.23	1000	153
265	250	-160.868	1000	154
270	250	-55.707	1000	155
275	250	180.081	1000	156
280	250	461.092	1000	157
285	250	611.055	1000	158

300478

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
290	250	674.545	1000	159
295	250	841.831	1000	160
300	250	1103.609	1000	161
305	250	883.899	1000	162
310	250	494.087	1000	163
315	250	95.066	1000	164
320	250	-220.746	1000	165
325	250	-17.458	1000	166
330	250	365.831	1000	167
335	250	591.922	1000	168
340	250	596.909	1000	169
345	250	510.921	1000	170
350	250	816.386	1000	171
355	250	1509.464	1000	172
360	250	1672.15	1000	173
365	250	1958.139	1000	174
370	250	2561.331	1000	175
375	250	2322.332	1000	176
380	250	1276.496	1000	177
385	250	1545.581	1000	178
390	250	1572.87	1000	179
395	250	1663.359	1000	180
400	250	1355.344	1000	181
405	250	985.332	1000	182
410	250	-511.652	1000	183
415	250	-2.992	1000	184
420	250	-724.402	1000	185
425	250	-9183.214	1000	186
430	250	-27737.52	1000	187
435	250	-31297.53	1000	188
435	240	-32576.2	1001	188
430	240	-25056.81	1001	187
425	240	-7525.249	1001	186
420	240	-43.557	1001	185
415	240	443.324	1001	184
410	240	771.102	1001	183
405	240	-3814.933	1001	182
400	240	1324.94	1001	181
395	240	1277.928	1001	180
390	240	786.818	1001	179
385	240	1207.989	1001	178
380	240	966.575	1001	177
375	240	765.362	1001	176
370	240	785.35	1001	175
365	240	703.138	1001	174
360	240	666.925	1001	173
355	240	689.838	1001	172
350	240	617.398	1001	171
345	240	682.282	1001	170
340	240	818.669	1001	169
335	240	663.699	1001	168
330	240	451.784	1001	167
325	240	329.976	1001	166
320	240	393.663	1001	165
315	240	413.079	1001	164
310	240	405.738	1001	163
305	240	592.631	1001	162
300	240	611.703	1001	161
295	240	593.189	1001	160
290	240	593.603	1001	159
285	240	602.762	1001	158
280	240	527.149	1001	157
275	240	328.54	1001	156
270	240	157.029	1001	155
265	240	218.417	1001	154
260	240	186.605	1001	153

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
260	230	30.487	1002	153
265	230	62.874	1002	154
270	230	302.341	1002	155
275	230	758.927	1002	156
280	230	1423.934	1002	157
285	230	2191.893	1002	158
290	230	2310.979	1002	159
295	230	2272.071	1002	160
300	230	1851.146	1002	161
305	230	1079.264	1002	162
310	230	532.113	1002	163
315	230	449.004	1002	164
320	230	397.193	1002	165
325	230	298.78	1002	166
330	230	284.973	1002	167
335	230	297.963	1002	168
340	230	263.953	1002	169
345	230	195.467	1002	170
350	230	275.829	1002	171
355	230	385.703	1002	172
360	230	369.49	1002	173
365	230	348.279	1002	174
370	230	466.869	1002	175
375	230	494.883	1002	176
380	230	665.945	1002	177
385	230	805.838	1002	178
390	230	790.623	1002	179
395	230	633.404	1002	180
400	230	731.585	1002	181
405	230	701.403	1002	182
410	230	559.766	1002	183
415	230	439.051	1002	184
420	230	222.243	1002	185
425	230	-6509.472	1002	186
430	230	-23627.48	1002	187
435	230	-31139.09	1002	188
435	220	-27332.71	1003	188
430	220	-23878.04	1003	187
425	220	-7568.257	1003	186
420	220	-1092.981	1003	185
415	220	320.408	1003	184
410	220	423.896	1003	183
405	220	453.083	1003	182
400	220	455.871	1003	181
395	220	573.057	1003	180
390	220	659.67	1003	179
385	220	679.033	1003	178
380	220	558.822	1003	177
375	220	426.311	1003	176
370	220	365.3	1003	175
365	220	415.787	1003	174
360	220	563.675	1003	173
355	220	589.288	1003	172
350	220	506.651	1003	171
345	220	325.836	1003	170
340	220	225.424	1003	169
335	220	217.213	1003	168
330	220	222.298	1003	167
325	220	253.986	1003	166
320	220	342.403	1003	165
315	220	448.962	1003	164
310	220	776.538	1003	163
305	220	1679.223	1003	162
300	220	1208.806	1003	161
295	220	387.365	1003	160
290	220	3611.034	1003	159

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
285	220	2765.994	1003	158
280	220	2449.778	1003	157
275	220	1230.151	1003	156
270	220	629.236	1003	155
265	220	326.05	1003	154
260	220	299.008	1003	153
260	210	477.306	1004	153
265	210	616.791	1004	154
270	210	770.779	1004	155
275	210	1011.257	1004	156
280	210	1560.033	1004	157
285	210	1995.122	1004	158
290	210	2128.898	1004	159
295	210	1917.789	1004	160
300	210	1382.404	1004	161
305	210	775.57	1004	162
310	210	379.259	1004	163
315	210	249.947	1004	164
320	210	115.334	1004	165
325	210	18.824	1004	166
330	210	21.017	1004	167
335	210	98.205	1004	168
340	210	254.184	1004	169
345	210	431.873	1004	170
350	210	540.463	1004	171
355	210	660.652	1004	172
360	210	588.84	1004	173
365	210	428.631	1004	174
370	210	344.72	1004	175
375	210	449.938	1004	176
380	210	620.189	1004	177
385	210	634.279	1004	178
390	210	512.968	1004	179
395	210	479.158	1004	180
400	210	443.049	1004	181
405	210	376.937	1004	182
410	210	266.09	1004	183
415	210	5.944	1004	184
420	210	-373.27	1004	185
425	210	-8292.679	1004	186
430	210	-25339.09	1004	187
435	210	-29772	1004	188
435	200	-29430.16	1005	188
430	200	-22879.67	1005	187
425	200	-16123.21	1005	186
420	200	323.557	1005	185
415	200	-32.057	1005	184
410	200	65.831	1005	183
405	200	270.746	1005	182
400	200	449.392	1005	181
395	200	606.377	1005	180
390	200	856.365	1005	179
385	200	1193.353	1005	178
380	200	1316.164	1005	177
375	200	930.104	1005	176
370	200	661.891	1005	175
365	200	679.98	1005	174
360	200	1029.381	1005	173
355	200	1533.539	1005	172
350	200	1756.026	1005	171
345	200	1547.213	1005	170
340	200	801.991	1005	169
335	200	167.595	1005	168
330	200	-157.155	1005	167
325	200	-320.87	1005	166
320	200	-228.08	1005	165

300481

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
315	200	-155.093	1005	164
310	200	-148.815	1005	163
305	200	-241.202	1005	162
300	200	-309.448	1005	161
295	200	-217.16	1005	160
290	200	-24.476	1005	159
285	200	159.312	1005	158
280	200	249.324	1005	157
275	200	292.012	1005	156
270	200	354.374	1005	155
265	200	484.16	1005	154
260	200	551.046	1005	153
260	190	289.173	1006	153
265	190	190.67	1006	154
270	190	98.792	1006	155
275	190	54.468	1006	156
280	190	42.967	1006	157
285	190	206.165	1006	158
290	190	544.465	1006	159
295	190	218.861	1006	160
300	190	-183.619	1006	161
305	190	-310.142	1006	162
310	190	-623.742	1006	163
315	190	-809.443	1006	164
320	190	-917.325	1006	165
325	190	-877.627	1006	166
330	190	-693.747	1006	167
335	190	-380.749	1006	168
340	190	36.05	1006	169
345	190	456.748	1006	170
350	190	748.946	1006	171
355	190	790.966	1006	172
360	190	678.342	1006	173
365	190	577.141	1006	174
370	190	629.043	1006	175
375	190	763.94	1006	176
380	190	884.74	1006	177
385	190	855.438	1006	178
390	190	763.56	1006	179
395	190	673.935	1006	180
400	190	523.433	1006	181
405	190	315.831	1006	182
410	190	327.431	1006	183
415	190	212.731	1006	184
420	190	107.929	1006	185
425	190	-6115.749	1006	186
430	190	-20142.47	1006	187
435	190	-27337.47	1006	188
435	180	-26921.09	1007	188
430	180	-22540.39	1007	187
425	180	-618.193	1007	186
420	180	1193.825	1007	185
415	180	1668.802	1007	184
410	180	1587.101	1007	183
405	180	1501.499	1007	182
400	180	1217.298	1007	181
395	180	990.919	1007	180
390	180	822.493	1007	179
385	180	711.492	1007	178
380	180	742.491	1007	177
375	180	814.49	1007	176
370	180	794.289	1007	175
365	180	785.487	1007	174
360	180	920.211	1007	173
355	180	1128.586	1007	172
350	180	1175.585	1007	171

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
345	180	779.883	1007	170
340	180	-495.597	1007	169
335	180	-5496.024	1007	168
330	180	-4918.623	1007	167
325	180	-6045.823	1007	166
320	180	-8013.426	1007	165
315	180	-5183.73	1007	164
310	180	-313.033	1007	163
305	180	1566.866	1007	162
300	180	1722.187	1007	161
295	180	2061.885	1007	160
290	180	1255.059	1007	159
285	180	1156.659	1007	158
280	180	444.276	1007	157
275	180	382.656	1007	156
270	180	441.553	1007	155
265	180	493.551	1007	154
260	180	552.249	1007	153
260	170	1212.488	1008	153
265	170	1459.486	1008	154
270	170	1318.883	1008	155
275	170	1006.481	1008	156
280	170	1022.679	1008	157
285	170	1364.677	1008	158
290	170	2295.996	1008	159
295	170	2693.868	1008	160
300	170	2198.386	1008	161
305	170	1521.464	1008	162
310	170	796.263	1008	163
315	170	-4931.54	1008	164
320	170	-4131.439	1008	165
325	170	-14610.74	1008	166
330	170	-13268.25	1008	167
335	170	-3960.754	1008	168
340	170	2958.443	1008	169
345	170	2694.139	1008	170
350	170	2385.539	1008	171
355	170	1743.335	1008	172
360	170	1148.736	1008	173
365	170	947.232	1008	174
370	170	861.629	1008	175
375	170	772.429	1008	176
380	170	715.529	1008	177
385	170	747.028	1008	178
390	170	848.447	1008	179
395	170	1160.122	1008	180
400	170	1494.62	1008	181
405	170	1838.219	1008	182
410	170	1830.54	1008	183
415	170	1332.717	1008	184
420	170	497.813	1008	185
425	170	-24947.39	1008	186
430	170	-29821.69	1008	187
435	170	-35768.57	1008	188
435	160	-31585.93	1009	188
430	160	-28912.93	1009	187
425	160	-1089.527	1009	186
420	160	155.992	1009	185
415	160	-8605.936	1009	184
410	160	1774.658	1009	183
405	160	1211.657	1009	182
400	160	1139.855	1009	181
395	160	1062.655	1009	180
390	160	799.072	1009	179
385	160	660.35	1009	178
380	160	541.849	1009	177

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
375	160	592.047	1009	176
370	160	720.546	1009	175
365	160	886.764	1009	174
360	160	1090.323	1009	173
355	160	1524.443	1009	172
350	160	2252.319	1009	171
345	160	3218.618	1009	170
340	160	2724.014	1009	169
335	160	-5079.389	1009	168
330	160	-8130.589	1009	167
325	160	-14410.89	1009	166
320	160	-4485.3	1009	165
315	160	-5384.2	1009	164
310	160	-5990.303	1009	163
305	160	-47.804	1009	162
300	160	540.993	1009	161
295	160	978.895	1009	160
290	160	1281.092	1009	159
285	160	1423.091	1009	158
280	160	1412.789	1009	157
275	160	1262.589	1009	156
270	160	1094.309	1009	155
265	160	929.985	1009	154
260	160	874.182	1009	153
260	150	1117.667	1010	153
265	150	1275.767	1010	154
270	150	1675.165	1010	155
275	150	2376.066	1010	156
280	150	3044.963	1010	157
285	150	3005.262	1010	158
290	150	2275.561	1010	159
295	150	1433.861	1010	160
300	150	801.36	1010	161
305	150	187.655	1010	162
310	150	-412.122	1010	163
315	150	-2448.525	1010	164
320	150	1327.353	1010	165
325	150	2841.351	1010	166
330	150	3648.048	1010	167
335	150	3541.569	1010	168
340	150	2556.046	1010	169
345	150	1829.846	1010	170
350	150	1351.743	1010	171
355	150	1004.742	1010	172
360	150	778.241	1010	173
365	150	635.74	1010	174
370	150	756.261	1010	175
375	150	909.959	1010	176
380	150	998.237	1010	177
385	150	1026.338	1010	178
390	150	1188.934	1010	179
395	150	1256.234	1010	180
400	150	1112.334	1010	181
405	150	910.13	1010	182
410	150	795.833	1010	183
415	150	795.15	1010	184
420	150	616.029	1010	185
425	150	-1680.471	1010	186
430	150	-20990.17	1010	187
435	150	-30928.67	1010	188
435	140	-24911.48	1011	188
430	140	-9072.981	1011	187
425	140	-303.983	1011	186
420	140	743.215	1011	185
415	140	894.513	1011	184
410	140	885.41	1011	183

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
405	140	1066.909	1011	182
400	140	1216.527	1011	181
395	140	1188.403	1011	180
390	140	1275.105	1011	179
385	140	1413.303	1011	178
380	140	1432.9	1011	177
375	140	1232.699	1011	176
370	140	696.6	1011	175
365	140	387.32	1011	174
360	140	293.195	1011	173
355	140	524.796	1011	172
350	140	893.494	1011	171
345	140	1404.094	1011	170
340	140	1989.092	1011	169
335	140	2514.188	1011	168
330	140	2972.987	1011	167
325	140	2783.986	1011	166
320	140	2260.785	1011	165
315	140	1831.682	1011	164
310	140	1595.902	1011	163
305	140	1497.481	1011	162
300	140	1520.28	1011	161
295	140	1877.579	1011	160
290	140	2402.078	1011	159
285	140	2798.776	1011	158
280	140	2944.394	1011	157
275	140	2574.074	1011	156
270	140	1930.471	1011	155
265	140	1494.072	1011	154
260	140	1372.168	1011	153
260	130	1304.207	1012	153
265	130	1322.383	1012	154
270	130	1378.98	1012	155
275	130	1461.28	1012	156
280	130	1612.08	1012	157
285	130	1852.879	1012	158
290	130	2144.179	1012	159
295	130	2287.699	1012	160
300	130	2316.995	1012	161
305	130	2394.273	1012	162
310	130	2659.674	1012	163
315	130	3377.97	1012	164
320	130	1815.289	1012	165
325	130	3286.163	1012	166
330	130	2279.662	1012	167
335	130	1863.781	1012	168
340	130	2548.16	1012	169
345	130	1716.359	1012	170
350	130	1090.256	1012	171
355	130	1927.157	1012	172
360	130	327.453	1012	173
365	130	421.253	1012	174
370	130	-2062.248	1012	175
375	130	-2511.825	1012	176
380	130	3080.85	1012	177
385	130	2189.746	1012	178
390	130	1505.648	1012	179
395	130	1123.647	1012	180
400	130	1022.146	1012	181
405	130	1113.963	1012	182
410	130	1269.742	1012	183
415	130	1316.44	1012	184
420	130	1133.04	1012	185
425	130	-1246.262	1012	186
430	130	-17469.96	1012	187
435	130	-31720.86	1012	188

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
295	140	1872.157	1011	160
300	140	1512.556	1011	161
305	140	1515.7	1011	162
310	140	1669.648	1011	163
315	140	1784.849	1011	164
320	140	2265.144	1011	165
325	140	2990.24	1011	166
330	140	2989.635	1011	167
335	140	2506.981	1011	168
340	140	1986.831	1011	169
345	140	1438.028	1011	170
350	140	789.826	1011	171
355	140	228.222	1011	172
360	140	-1123.288	1011	173
365	140	-4527.293	1011	174
370	140	-7389.297	1011	175
375	140	-1444.854	1011	176
380	140	436.195	1011	177
385	140	461.692	1011	178
390	140	-288.914	1011	179
395	140	914.381	1011	180
400	140	-2269.08	1011	181
405	140	-787.783	1011	182
410	140	-2169.889	1011	183
415	140	-1074.691	1011	184
420	140	-4119.548	1011	185
425	140	-14691.4	1011	186
430	140	-27687.2	1011	187
435	140	-30609.9	1011	188
435	130	-31350.26	1012	188
430	130	-26095.72	1012	187
425	130	-27034.62	1012	186
420	130	-3696.024	1012	185
415	130	-4066.131	1012	184
410	130	-3071.137	1012	183
405	130	-794.339	1012	182
400	130	-2773.043	1012	181
395	130	-1120.245	1012	180
390	130	-501.954	1012	179
385	130	-422.659	1012	178
380	130	-983.662	1012	177
375	130	-9194.667	1012	176
370	130	-15926.12	1012	175
365	130	-14702.17	1012	174
360	130	-5845.681	1012	173
355	130	2032.361	1012	172
350	130	-2298.157	1012	171
345	130	-1381.408	1012	170
340	130	-244.61	1012	169
335	130	2045.587	1012	168
330	130	2209.686	1012	167
325	130	2560.882	1012	166
320	130	-3758.675	1012	165
315	130	2777.37	1012	164
310	130	2511.965	1012	163
305	130	2196.463	1012	162
300	130	2191.363	1012	161
295	130	2159.66	1012	160
295	120	754.542	1013	160
300	120	470.088	1013	161
305	120	-3418.565	1013	162
310	120	-6355.268	1013	163
315	120	406.728	1013	164
320	120	2906.324	1013	165
325	120	2225.267	1013	166
330	120	656.912	1013	167

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
335	120	-380.292	1013	168
340	120	-958.893	1013	169
345	120	-806.196	1013	170
350	120	-532.551	1013	171
355	120	-2658.103	1013	172
360	120	-10300.4	1013	173
365	120	-14416.21	1013	174
370	120	-15134.01	1013	175
375	120	-10256.71	1013	176
380	120	2554.281	1013	177
385	120	940.473	1013	178
390	120	175.369	1013	179
395	120	-2231.441	1013	180
400	120	-3996.647	1013	181
405	120	-4068.956	1013	182
410	120	-5610.361	1013	183
415	120	-4011.065	1013	184
420	120	-8407.067	1013	185
425	120	-17134.97	1013	186
430	120	-28553.22	1013	187
435	120	-32336.07	1013	188
435	110	-30543.67	1014	188
430	110	-25923.29	1014	187
425	110	-15099.22	1014	186
420	110	-7565.069	1014	185
415	110	-1656.416	1014	184
410	110	-1274.631	1014	183
405	110	-1811.843	1014	182
400	110	83.016	1014	181
395	110	1028.664	1014	180
390	110	1546.789	1014	179
385	110	1984.871	1014	178
380	110	2077.156	1014	177
375	110	1656.813	1014	176
370	110	-7170.815	1014	175
365	110	-24646.04	1014	174
360	110	-28412.75	1014	173
355	110	-28831.87	1014	172
350	110	-26256.02	1014	171
345	110	-16719.3	1014	170
340	110	-18031.22	1014	169
375	100	-26045.32	1015	176
380	100	-16516.81	1015	177
385	100	-11202.21	1015	178
390	100	3920.703	1015	179
395	100	1671.205	1015	180
400	100	1389.692	1015	181
405	100	-752.834	1015	182
410	100	-931.144	1015	183
415	100	-1666.257	1015	184
420	100	-5201.372	1015	185
425	100	-14883.92	1015	186
430	100	-29053.2	1015	187
435	100	-30799.11	1015	188
440	100	-30843.82	1015	189
380	70	1775.999	1018	177
385	70	1211.788	1018	178
390	70	-43.422	1018	179
395	70	-760.538	1018	180
400	70	-14383.95	1018	181
405	70	-12995.8	1018	182
410	70	-9433.888	1018	183
415	70	-15820.12	1018	184
420	70	-31327.13	1018	185
425	70	-32699.34	1018	186
430	70	-31643.85	1018	187

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
435	70	-30863	1018	188
440	70	-30842.87	1018	189
440	80	-30843.63	1017	189
435	80	-30922.99	1017	188
430	80	-31938.7	1017	187
425	80	-26754.77	1017	186
420	80	-1444.455	1017	185
415	80	-14922.08	1017	184
410	80	-2297.106	1017	183
405	80	-2467.522	1017	182
400	80	-502.873	1017	181
395	80	244.755	1017	180
390	80	680.33	1017	179
385	80	-8044.797	1017	178
380	80	-11483.61	1017	177
375	80	-27282.06	1017	176
375	90	-30373.18	1016	176
380	90	-27952.11	1016	177
385	90	-25831.26	1016	178
390	90	-15222.37	1016	179
395	90	2118.74	1016	180
400	90	-1308.57	1016	181
405	90	-7023.985	1016	182
410	90	-1442.299	1016	183
415	90	-247.41	1016	184
420	90	-3966.534	1016	185
425	90	-23954.35	1016	186
430	90	-30925.66	1016	187
435	90	-32779.77	1016	188
440	90	-30859.98	1016	189
375	60	-24950.04	1019	176
380	60	-22686.46	1019	177
385	60	-10332.67	1019	178
390	60	-2857.382	1019	179
395	60	-8369.895	1019	180
400	60	-15338.65	1019	181
405	60	-17559.06	1019	182
410	60	-11467.13	1019	183
415	60	-22356.24	1019	184
420	60	-29653.76	1019	185
425	60	-27484.97	1019	186
430	60	-30008.69	1019	187
435	60	-30803.8	1019	188
440	60	-30712.55	1019	189
375	30	-14829.54	1022	176
380	30	-17324.82	1022	177
385	30	-24992.33	1022	178
390	30	-23550.15	1022	179
395	30	-18924.87	1022	180
400	30	-27709.44	1022	181
405	30	-25054.31	1022	182
410	30	-26206.13	1022	183
415	30	-17571.46	1022	184
420	30	-20107.69	1022	185
425	30	-31719.14	1022	186
430	30	-29769.01	1022	187
435	30	-28602.03	1022	188
440	30	-26905.74	1022	189
440	40	-30111.66	1021	189
435	40	-29693.58	1021	188
430	40	-23445.23	1021	187
425	40	-18447.94	1021	186
420	40	-22888.55	1021	185
415	40	-20606.46	1021	184
410	40	-5951.635	1021	183
405	40	-18243.87	1021	182

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Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
400	40	-11322.7	1021	181
395	40	-14700.82	1021	180
390	40	-17939.94	1021	179
385	40	-17745.35	1021	178
380	40	-15057.77	1021	177
375	40	-21973.82	1021	176
375	50	-21077.66	1020	176
380	50	-13212.92	1020	177
385	50	-1535.804	1020	178
390	50	-714.747	1020	179
395	50	250.38	1020	180
400	50	-760.994	1020	181
405	50	1765.395	1020	182
410	50	-4652.749	1020	183
415	50	-18035.26	1020	184
420	50	-19175.71	1020	185
425	50	-30001.43	1020	186
430	50	-30898.1	1020	187
435	50	-31059.11	1020	188
440	50	-28800.82	1020	189
375	20	-22696.15	1023	176
380	20	-21485.06	1023	177
385	20	-21630.22	1023	178
390	20	-19087.7	1023	179
395	20	-24363.51	1023	180
415	20	-23424.3	1023	184
420	20	-8085.631	1023	185
425	20	-24455.05	1023	186
430	20	-27623.06	1023	187
435	20	-27835.21	1023	188
440	20	-28431.58	1023	189
440	10	-31539.15	1024	189
435	10	-29806.74	1024	188
430	10	-27646.15	1024	187
425	10	-31166.61	1024	186
420	10	-15926.88	1024	185
415	10	-15878	1024	184
410	10	-30341.91	1024	183
405	10	-18036.13	1024	182
400	10	-13424.84	1024	181
395	10	-9480.894	1024	180
390	10	-20049.4	1024	179
385	10	-28608.98	1024	178
380	10	-14144.39	1024	177
375	10	-24932.2	1024	176
375	0	-25525.48	1025	176
380	0	-17864.5	1025	177
385	0	-17057.32	1025	178
390	0	-17180.13	1025	179
395	0	-22954.37	1025	180
400	0	-16159.08	1025	181
405	0	-16830.59	1025	182
410	0	-23174.6	1025	183
415	0	-23220.12	1025	184
420	0	-28981.04	1025	185
425	0	-27118.49	1025	186
430	0	-27453.17	1025	187
435	0	-27363.49	1025	188
440	0	-27015.1	1025	189
195	160	2007.398	1009	140
190	160	1959.397	1009	139
185	160	1892.499	1009	138
180	160	1921.897	1009	137
175	160	1856.799	1009	136
170	160	1712.299	1009	135
165	160	1581.299	1009	134

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
160	160	1629.5	1009	133
155	160	1612.698	1009	132
150	160	1385.897	1009	131
145	160	1213.897	1009	130
140	160	1200.197	1009	129
135	160	1260.499	1009	128
130	160	1362.198	1009	127
125	160	1474.095	1009	126
120	160	1596.396	1009	125
115	160	1656.595	1009	124
110	160	1740.396	1009	123
105	160	1753.3	1009	122
100	160	1742.697	1009	121
95	160	1824.697	1009	120
90	160	1891.798	1009	119
85	160	1978.095	1009	118
80	160	2184.798	1009	117
75	160	2261.596	1009	116
70	160	2238.497	1009	115
65	160	2135.895	1009	114
60	160	2037.094	1009	113
55	160	1986.997	1009	112
50	160	1937.895	1009	111
45	160	1795.996	1009	110
40	160	1544.998	1009	109
35	160	1413.895	1009	108
30	160	1579.895	1009	107
25	160	1482.894	1009	106
20	160	1272.797	1009	105
15	160	927.298	1009	104
0	150	-167.305	1010	101
5	150	513.997	1010	102
10	150	693.094	1010	103
15	150	618.394	1010	104
20	150	940.093	1010	105
25	150	1230.796	1010	106
30	150	1241.893	1010	107
35	150	1241.694	1010	108
40	150	1258.995	1010	109
45	150	1386.694	1010	110
50	150	1628.592	1010	111
55	150	1724.092	1010	112
60	150	1703.893	1010	113
65	150	1618.295	1010	114
70	150	1422.295	1010	115
75	150	1312.496	1010	116
80	150	1257.592	1010	117
85	150	1191.392	1010	118
90	150	1113.295	1010	119
95	150	987.892	1010	120
100	150	938.392	1010	121
105	150	1064.296	1010	122
110	150	1220.794	1010	123
115	150	1276.493	1010	124
120	150	1241.993	1010	125
125	150	1144.692	1010	126
130	150	1036.092	1010	127
135	150	975.192	1010	128
140	150	1071.692	1010	129
145	150	1227.391	1010	130
150	150	1587.392	1010	131
155	150	2212.192	1010	132
160	150	2895.293	1010	133
165	150	3212.992	1010	134
170	150	3414.391	1010	135
175	150	3394.391	1010	136

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
180	150	2936.391	1010	137
185	150	2411.892	1010	138
190	150	2457.89	1010	139
195	150	3228.89	1010	140
195	140	2887.792	1011	140
190	140	2586.589	1011	139
185	140	3182.792	1011	138
180	140	1705.692	1011	137
175	140	2595.992	1011	136
170	140	1761.588	1011	135
165	140	1983.99	1011	134
160	140	3262.588	1011	133
155	140	2184.691	1011	132
150	140	1556.99	1011	131
145	140	1271.291	1011	130
140	140	1126.29	1011	129
135	140	983.689	1011	128
130	140	914.189	1011	127
125	140	931.088	1011	126
120	140	999.489	1011	125
115	140	1052.79	1011	124
110	140	1026.79	1011	123
105	140	1030.087	1011	122
100	140	1018.389	1011	121
95	140	859.887	1011	120
90	140	697.586	1011	119
85	140	519.791	1011	118
80	140	382.289	1011	117
75	140	528.789	1011	116
70	140	773.488	1011	115
65	140	960.488	1011	114
60	140	1033.488	1011	113
55	140	1053.29	1011	112
50	140	1027.585	1011	111
45	140	971.085	1011	110
40	140	975.988	1011	109
35	140	1030.187	1011	108
30	140	976.788	1011	107
25	140	845.487	1011	106
20	140	760.387	1011	105
15	140	649.788	1011	104
10	140	719.585	1011	103
5	140	542.487	1011	102
0	140	-3967.314	1011	101
0	130	-1808.916	1012	101
5	130	512.084	1012	102
10	130	640.286	1012	103
15	130	730.885	1012	104
20	130	989.788	1012	105
25	130	1217.083	1012	106
30	130	1214.185	1012	107
35	130	1052.485	1012	108
40	130	852.385	1012	109
45	130	759.985	1012	110
50	130	729.985	1012	111
55	130	763.485	1012	112
60	130	798.082	1012	113
65	130	685.787	1012	114
70	130	484.785	1012	115
75	130	236.785	1012	116
80	130	129.383	1012	117
85	130	385.082	1012	118
90	130	724.383	1012	119
95	130	945.383	1012	120
100	130	1054.786	1012	121
105	130	1032.882	1012	122

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
110	130	985.285	1012	123
115	130	944.683	1012	124
120	130	899.784	1012	125
125	130	864.882	1012	126
130	130	882.581	1012	127
135	130	1030.684	1012	128
140	130	1237.284	1012	129
145	130	1347.784	1012	130
150	130	1496.081	1012	131
155	130	1876.682	1012	132
160	130	2345.284	1012	133
165	130	2867.284	1012	134
170	130	3342.484	1012	135
175	130	3507.081	1012	136
180	130	3159.182	1012	137
185	130	2517.483	1012	138
190	130	2174.08	1012	139
195	130	1997.783	1012	140
195	120	1466.581	1013	140
190	120	1441.079	1013	139
185	120	1551.579	1013	138
180	120	1744.579	1013	137
175	120	1895.88	1013	136
170	120	1914.282	1013	135
165	120	1760.983	1013	134
160	120	1523.079	1013	133
155	120	1235.282	1013	132
150	120	977.282	1013	131
145	120	814.18	1013	130
140	120	774.282	1013	129
135	120	777.481	1013	128
130	120	783.981	1013	127
125	120	854.982	1013	126
120	120	1062.281	1013	125
115	120	1109.578	1013	124
110	120	1145.879	1013	123
105	120	1421.281	1013	122
100	120	2026.639	1013	121
95	120	2529.336	1013	120
90	120	2760.239	1013	119
85	120	2421.739	1013	118
80	120	1851.535	1013	117
75	120	1466.137	1013	116
70	120	1286.24	1013	115
65	120	1252.535	1013	114
60	120	1193.637	1013	113
55	120	1153.738	1013	112
50	120	1075.836	1013	111
45	120	990.136	1013	110
40	120	984.636	1013	109
35	120	1046.536	1013	108
30	120	1107.636	1013	107
25	120	1173.437	1013	106
20	120	1137.034	1013	105
15	120	845.136	1013	104
10	120	610.237	1013	103
5	120	449.534	1013	102
0	120	-2664.964	1013	101
0	110	-3084.36	1014	101
5	110	253.037	1014	102
10	110	145.537	1014	103
15	110	174.936	1014	104
20	110	282.537	1014	105
25	110	450.236	1014	106
30	110	582.736	1014	107
35	110	743.937	1014	108

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
40	110	856.638	1014	109
45	110	1006.638	1014	110
50	110	1187.935	1014	111
55	110	1406.236	1014	112
60	110	1765.036	1014	113
65	110	2169.237	1014	114
70	110	2828.236	1014	115
75	110	3965.138	1014	116
80	110	3223.235	1014	117
85	110	-5453.663	1014	118
90	110	-8683.265	1014	119
95	110	-1671.265	1014	120
100	110	4389.235	1014	121
105	110	2759.434	1014	122
110	110	1736.736	1014	123
115	110	1431.234	1014	124
120	110	1125.637	1014	125
125	110	853.137	1014	126
130	110	497.933	1014	127
135	110	225.433	1014	128
140	110	82.337	1014	129
145	110	-124.464	1014	130
150	110	-229.165	1014	131
155	110	340.433	1014	132
160	110	642.034	1014	133
165	110	787.034	1014	134
170	110	1029.036	1014	135
175	110	1263.733	1014	136
180	110	1170.136	1014	137
185	110	1042.136	1014	138
190	110	996.636	1014	139
195	110	953.835	1014	140
195	100	360.034	1015	140
190	100	254.932	1015	139
185	100	-10865.67	1015	138
180	100	915.733	1015	137
175	100	226.635	1015	136
170	100	-11863.36	1015	135
165	100	-13883.07	1015	134
160	100	-11498.17	1015	133
155	100	-11992.17	1015	132
150	100	-11297.07	1015	131
145	100	-10928.27	1015	130
140	100	-6128.467	1015	129
135	100	-10298.36	1015	128
130	100	-9376.364	1015	127
125	100	-1717.167	1015	126
120	100	28.834	1015	125
115	100	731.333	1015	124
110	100	1535.43	1015	123
105	100	3039.731	1015	122
100	100	441.133	1015	121
95	100	-5832.969	1015	120
90	100	-12111.57	1015	119
85	100	-12588.27	1015	118
80	100	-8749.569	1015	117
75	100	2550.031	1015	116
70	100	4066.429	1015	115
65	100	2717.031	1015	114
60	100	1984.632	1015	113
55	100	1538.331	1015	112
50	100	1371.93	1015	111
45	100	1312.23	1015	110
40	100	1279.132	1015	109
35	100	1091.929	1015	108
30	100	726.831	1015	107

Magnetic Total Field Data (corrected)
Martin Aaron Site RI/RAA

X-Coord (feet)	Y-Coord (feet)	Total Field (gammas)	Profile Number	Station Number
25	100	325.928	1015	106
20	100	-42.771	1015	105
15	100	-306.969	1015	104
10	100	-185.869	1015	103
5	100	105.03	1015	102
0	100	-3491.47	1015	101
0	90	856.229	1016	101
5	90	-138.272	1016	102
10	90	-5075.572	1016	103
15	90	-5926.772	1016	104
20	90	-8246.771	1016	105
25	90	-5790.573	1016	106
30	90	-1358.971	1016	107
35	90	2635.529	1016	108
40	90	2411.63	1016	109
45	90	1172.028	1016	110
50	90	1656.831	1016	111
55	90	1507.927	1016	112
60	90	1715.028	1016	113
65	90	2376.028	1016	114
70	90	3345.927	1016	115
75	90	4683.428	1016	116
80	90	49.629	1016	117
85	90	174.028	1016	118
90	90	-1436.672	1016	119
95	90	3944.426	1016	120
100	90	3394.629	1016	121
105	90	1947.728	1016	122
110	90	1066.328	1016	123
115	90	307.129	1016	124
120	90	-915.672	1016	125
125	90	-3714.872	1016	126
130	90	-10141.17	1016	127
130	80	-7692.273	1017	127
125	80	-3620.872	1017	126
120	80	-2375.775	1017	125
115	80	-1640.076	1017	124
110	80	781.627	1017	123
105	80	574.828	1017	122
100	80	-1141.775	1017	121
95	80	-11153.78	1017	120
90	80	-737.975	1017	119
85	80	3628.027	1017	118
80	80	1176.224	1017	117
75	80	-1933.374	1017	116
70	80	1481.923	1017	115
65	80	1248.525	1017	114
60	80	2175.525	1017	113
55	80	2253.327	1017	112
50	80	2094.423	1017	111
45	80	-11639.37	1017	110
40	80	-10883.08	1017	109
35	80	-68.277	1017	108
30	80	-7849.875	1017	107
25	80	-11198.87	1017	106
20	80	-11064.17	1017	105
15	80	-11905.68	1017	104
10	80	-15988.98	1017	103
5	80	-8984.875	1017	102
0	80	-16541.68	1017	101

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
0	240	272.736	1001	101
5	240	265.962	1001	102
10	240	236.112	1001	103
15	240	226.044	1001	104
20	240	273.924	1001	105
25	240	293.52	1001	106
30	240	305.148	1001	107
35	240	268.344	1001	108
40	240	231.168	1001	109
45	240	211.488	1001	110
50	240	180.816	1001	111
55	240	177.336	1001	112
60	240	157.926	1001	113
65	240	155.73	1001	114
70	240	164.976	1001	115
75	240	177.888	1001	116
80	240	174.132	1001	117
85	240	168.546	1001	118
90	240	158.478	1001	119
95	240	147.036	1001	120
100	240	136.506	1001	121
105	240	133.848	1001	122
110	240	138.156	1001	123
115	240	145.2	1001	124
120	240	152.526	1001	125
125	240	151.152	1001	126
130	240	144.834	1001	127
135	240	147.216	1001	128
140	240	153.624	1001	129
145	240	131.652	1001	130
150	240	124.326	1001	131
155	240	117.918	1001	132
160	240	118.836	1001	133
165	240	106.752	1001	134
170	240	96.222	1001	135
175	240	95.946	1001	136
180	240	95.034	1001	137
185	240	93.108	1001	138
190	240	95.124	1001	139
195	240	88.992	1001	140
195	230	87.066	1002	140
190	230	83.496	1002	139
185	230	88.896	1002	138
180	230	98.238	1002	137
175	230	100.344	1002	136
170	230	99.06	1002	135
165	230	101.442	1002	134
160	230	110.598	1002	133
155	230	121.032	1002	132
150	230	127.716	1002	131
145	230	152.982	1002	130
140	230	196.746	1002	129
135	230	201.324	1002	128
130	230	195.468	1002	127
125	230	191.256	1002	126
120	230	167.544	1002	125
115	230	152.346	1002	124
110	230	151.98	1002	123
105	230	148.134	1002	122
100	230	139.89	1002	121
95	230	131.652	1002	120
90	230	130.83	1002	119
85	230	123.138	1002	118
80	230	117.552	1002	117
75	230	108.948	1002	116
70	230	104.646	1002	115

300495

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
65	230	118.194	1002	114
60	230	141.726	1002	113
55	230	157.836	1002	112
50	230	160.764	1002	111
45	230	139.62	1002	110
40	230	160.128	1002	109
35	230	252.87	1002	108
30	230	183.564	1002	107
25	230	158.754	1002	106
20	230	204.804	1002	105
15	230	199.77	1002	104
10	230	201.048	1002	103
5	230	171.204	1002	102
0	230	193.176	1002	101
0	220	36.624	1003	101
5	220	39.186	1003	102
10	220	-5.952	1003	103
15	220	-61.614	1003	104
20	220	-7.139	1003	105
25	220	40.926	1003	106
30	220	52.824	1003	107
35	220	75.9	1003	108
40	220	117.462	1003	109
45	220	112.794	1003	110
50	220	119.658	1003	111
55	220	118.284	1003	112
60	220	120.39	1003	113
65	220	120.12	1003	114
70	220	120.3	1003	115
75	220	119.844	1003	116
80	220	133.116	1003	117
85	220	135.588	1003	118
90	220	120.756	1003	119
95	220	142.272	1003	120
100	220	180.816	1003	121
105	220	179.532	1003	122
110	220	179.994	1003	123
115	220	183.012	1003	124
120	220	188.232	1003	125
125	220	199.038	1003	126
130	220	218.076	1003	127
135	220	218.904	1003	128
140	220	196.656	1003	129
145	220	172.212	1003	130
150	220	152.16	1003	131
155	220	143.19	1003	132
160	220	137.238	1003	133
165	220	122.862	1003	134
170	220	111.33	1003	135
175	220	106.656	1003	136
180	220	98.874	1003	137
185	220	87.252	1003	138
190	220	88.992	1003	139
195	220	97.23	1003	140
195	210	106.842	1004	140
190	210	102.54	1004	139
185	210	117.648	1004	138
180	210	120.3	1004	137
175	210	118.38	1004	136
170	210	126.798	1004	135
165	210	139.986	1004	134
160	210	147.672	1004	133
155	210	170.748	1004	132
150	210	194.64	1004	131
145	210	202.974	1004	130
140	210	198.12	1004	129

300496

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
135	210	205.26	1004	128
130	210	214.236	1004	127
125	210	218.994	1004	126
120	210	205.716	1004	125
115	210	205.716	1004	124
110	210	218.262	1004	123
105	210	213.96	1004	122
100	210	212.766	1004	121
95	210	209.838	1004	120
90	210	170.286	1004	119
85	210	139.344	1004	118
80	210	142.824	1004	117
75	210	128.814	1004	116
70	210	107.574	1004	115
65	210	100.614	1004	114
60	210	100.344	1004	113
55	210	95.856	1004	112
50	210	101.622	1004	111
45	210	104.922	1004	110
40	210	110.232	1004	109
35	210	117.648	1004	108
30	210	73.332	1004	107
25	210	-4.854	1004	106
20	210	4.758	1004	105
15	210	-106.752	1004	104
10	210	-170.472	1004	103
5	210	-96.221	1004	102
0	210	-23.712	1004	101
0	200	49.896	1005	101
5	200	25.176	1005	102
10	200	-79.008	1005	103
15	200	-116.088	1005	104
20	200	-54.654	1005	105
25	200	-42.57	1005	106
30	200	-7.506	1005	107
35	200	105.192	1005	108
40	200	85.512	1005	109
45	200	88.626	1005	110
50	200	95.67	1005	111
55	200	94.758	1005	112
60	200	103.182	1005	113
65	200	101.898	1005	114
70	200	81.024	1005	115
75	200	108.672	1005	116
80	200	184.572	1005	117
85	200	187.224	1005	118
90	200	188.322	1005	119
95	200	228.696	1005	120
100	200	246.276	1005	121
105	200	241.608	1005	122
110	200	241.056	1005	123
115	200	247.74	1005	124
120	200	253.146	1005	125
125	200	253.782	1005	126
130	200	250.764	1005	127
135	200	237.396	1005	128
140	200	222.93	1005	129
145	200	218.352	1005	130
150	200	218.262	1005	131
155	200	203.064	1005	132
160	200	182.1	1005	133
165	200	169.374	1005	134
170	200	161.04	1005	135
175	200	153.348	1005	136
180	200	156.186	1005	137
185	200	162.048	1005	138

300497

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
190	200	147.582	1005	139
195	200	128.724	1005	140
195	190	148.224	1006	140
190	190	138.336	1006	139
185	190	132.57	1006	138
180	190	165.162	1006	137
175	190	172.758	1006	136
170	190	182.742	1006	135
165	190	200.226	1006	134
160	190	225.312	1006	133
155	190	257.082	1006	132
150	190	250.032	1006	131
145	190	268.8	1006	130
140	190	278.046	1006	129
135	190	277.224	1006	128
130	190	261.198	1006	127
125	190	261.66	1006	126
120	190	274.476	1006	125
115	190	281.892	1006	124
110	190	282.714	1006	123
105	190	293.244	1006	122
100	190	290.682	1006	121
95	190	305.784	1006	120
90	190	265.686	1006	119
85	190	203.34	1006	118
80	190	138.888	1006	117
75	190	115.176	1006	116
70	190	112.608	1006	115
65	190	114.438	1006	114
60	190	108.216	1006	113
55	190	99.336	1006	112
50	190	102.354	1006	111
45	190	104.46	1006	110
40	190	84.78	1006	109
35	190	109.68	1006	108
30	190	125.976	1006	107
25	190	87.798	1006	106
20	190	116.364	1006	105
15	190	67.014	1006	104
10	190	59.418	1006	103
5	190	113.34	1006	102
0	190	244.446	1006	101
195	180	308.442	1007	140
190	180	282.534	1007	139
185	180	231.906	1007	138
180	180	201.966	1007	137
175	180	214.968	1007	136
170	180	247.194	1007	135
165	180	256.986	1007	134
160	180	262.392	1007	133
155	180	263.214	1007	132
150	180	254.334	1007	131
145	180	259.92	1007	130
140	180	266.604	1007	129
135	180	267.702	1007	128
130	180	262.848	1007	127
125	180	274.02	1007	126
120	180	298.734	1007	125
115	180	321.714	1007	124
110	180	309.816	1007	123
105	180	312.378	1007	122
100	180	320.802	1007	121
95	180	283.902	1007	120
90	180	204.162	1007	119
85	180	149.598	1007	118
80	180	139.89	1007	117

300498

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
75	180	154.818	1007	116
70	180	147.768	1007	115
65	180	115.632	1007	114
60	180	98.508	1007	113
55	180	94.938	1007	112
50	180	98.238	1007	111
45	180	86.244	1007	110
40	180	107.394	1007	109
35	180	185.394	1007	108
30	180	16.752	1007	107
25	180	-101.166	1007	106
20	180	-53.286	1007	105
15	180	-195.006	1007	104
10	180	61.524	1007	103
5	180	82.398	1007	102
0	180	253.236	1007	101
0	170	125.43	1008	101
5	170	61.524	1008	102
10	170	59.784	1008	103
15	170	20.322	1008	104
20	170	-42.023	1008	105
25	170	54.654	1008	106
30	170	41.838	1008	107
35	170	106.752	1008	108
40	170	91.368	1008	109
45	170	89.172	1008	110
50	170	92.1	1008	111
55	170	91.368	1008	112
60	170	90.636	1008	113
65	170	96.498	1008	114
70	170	105.924	1008	115
75	170	126.984	1008	116
80	170	175.416	1008	117
85	170	258.546	1008	118
90	170	307.62	1008	119
95	170	243.162	1008	120
100	170	164.064	1008	121
105	170	194.364	1008	122
110	170	306.246	1008	123
115	170	331.512	1008	124
120	170	291.78	1008	125
125	170	257.904	1008	126
130	170	239.226	1008	127
135	170	224.214	1008	128
140	170	225.768	1008	129
145	170	230.898	1008	130
150	170	252.96	1008	131
155	170	276.948	1008	132
160	170	275.754	1008	133
165	170	250.122	1008	134
170	170	201.51	1008	135
175	170	184.386	1008	136
180	170	245.454	1008	137
185	170	283.998	1008	138
190	170	282.9	1008	139
195	170	273.468	1008	140
295	270	101.166	998	160
290	270	131.742	998	159
285	270	125.7	998	158
280	270	132.57	998	157
275	270	116.454	998	156
270	270	143.646	998	155
265	270	120.486	998	154
260	270	122.406	998	153
255	270	88.896	998	152
250	270	103.362	998	151

300499

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
245	270	82.854	998	150
240	270	73.152	998	149
235	270	92.928	998	148
230	270	98.052	998	147
225	270	93.564	998	146
220	270	112.338	998	145
165	260	70.494	999	134
170	260	83.04	999	135
175	260	109.314	999	136
180	260	87.618	999	137
185	260	125.7	999	138
190	260	107.208	999	139
195	260	109.956	999	140
200	260	116.73	999	141
205	260	114.438	999	142
210	260	104.46	999	143
215	260	93.84	999	144
220	260	82.674	999	145
225	260	86.058	999	146
230	260	99.426	999	147
235	260	108.948	999	148
240	260	117.738	999	149
245	260	108.672	999	150
250	260	126.252	999	151
255	260	146.76	999	152
260	260	120.486	999	153
265	260	91.92	999	154
270	260	111.51	999	155
275	260	133.116	999	156
280	260	184.752	999	157
285	260	153.348	999	158
290	260	157.014	999	159
295	260	104.37	999	160
295	250	105.288	1000	160
290	250	121.122	1000	159
285	250	138.246	1000	158
280	250	112.152	1000	157
275	250	76.17	1000	156
270	250	74.43	1000	155
265	250	80.016	1000	154
260	250	96.774	1000	153
255	250	112.518	1000	152
250	250	130.374	1000	151
245	250	123.504	1000	150
240	250	123.504	1000	149
235	250	87.618	1000	148
230	250	62.622	1000	147
225	250	90.546	1000	146
220	250	134.58	1000	145
215	250	123.87	1000	144
210	250	112.062	1000	143
205	250	87.888	1000	142
200	250	98.508	1000	141
195	250	101.808	1000	140
190	250	97.596	1000	139
185	250	96.588	1000	138
180	250	104.922	1000	137
175	250	100.614	1000	136
170	250	109.224	1000	135
165	250	110.412	1000	134
160	250	134.946	1000	133
155	250	123.324	1000	132
150	250	155.82	1000	131
145	250	153.444	1000	130
140	250	155.916	1000	129
135	250	138.156	1000	128

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
195	240	90.18	1001	140
200	240	86.244	1001	141
205	240	87.798	1001	142
210	240	100.344	1001	143
215	240	125.064	1001	144
220	240	118.194	1001	145
225	240	75.258	1001	146
230	240	42.756	1001	147
235	240	82.578	1001	148
240	240	118.746	1001	149
245	240	122.958	1001	150
250	240	122.04	1001	151
255	240	100.344	1001	152
260	240	51.45	1001	153
265	240	69.396	1001	154
270	240	142.728	1001	155
275	240	149.688	1001	156
280	240	111.966	1001	157
285	240	114.072	1001	158
290	240	121.032	1001	159
295	240	99.978	1001	160
295	230	80.568	1002	160
290	230	99.882	1002	159
285	230	100.434	1002	158
280	230	101.898	1002	157
275	230	131.01	1002	156
270	230	124.788	1002	155
265	230	56.214	1002	154
260	230	24.444	1002	153
255	230	82.764	1002	152
250	230	124.056	1002	151
245	230	127.53	1002	150
240	230	128.268	1002	149
235	230	94.206	1002	148
230	230	46.506	1002	147
225	230	59.874	1002	146
220	230	111.51	1002	145
215	230	123.324	1002	144
210	230	107.118	1002	143
205	230	94.026	1002	142
200	230	85.05	1002	141
195	230	88.992	1002	140
195	220	98.874	1003	140
200	220	104.184	1003	141
205	220	107.028	1003	142
210	220	106.566	1003	143
215	220	114.99	1003	144
220	220	121.032	1003	145
225	220	92.376	1003	146
230	220	54.84	1003	147
235	220	60.702	1003	148
240	220	100.344	1003	149
245	220	127.992	1003	150
250	220	135.954	1003	151
255	220	101.622	1003	152
260	220	13.914	1003	153
265	220	-17.484	1003	154
270	220	48.612	1003	155
275	220	85.692	1003	156
280	220	100.614	1003	157
285	220	86.058	1003	158
290	220	83.772	1003	159
295	220	68.388	1003	160
295	210	64.362	1004	160
290	210	84.504	1004	159
285	210	107.76	1004	158

300501

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
280	210	115.998	1004	157
275	210	113.436	1004	156
270	210	73.428	1004	155
265	210	7.326	1004	154
260	210	31.494	1004	153
255	210	84.594	1004	152
250	210	135.954	1004	151
245	210	130.554	1004	150
240	210	102.084	1004	149
235	210	55.026	1004	148
230	210	47.424	1004	147
225	210	103.914	1004	146
220	210	127.992	1004	145
215	210	126.528	1004	144
210	210	122.958	1004	143
205	210	126.798	1004	142
200	210	117.738	1004	141
195	210	107.664	1004	140
195	200	130.644	1005	140
200	200	134.49	1005	141
205	200	148.314	1005	142
210	200	176.058	1005	143
215	200	187.956	1005	144
220	200	178.344	1005	145
225	200	139.62	1005	146
230	200	90.456	1005	147
235	200	81.942	1005	148
240	200	117.282	1005	149
245	200	122.772	1005	150
250	200	124.056	1005	151
255	200	128.634	1005	152
260	200	85.146	1005	153
265	200	38.268	1005	154
270	200	64.362	1005	155
275	200	115.266	1005	156
280	200	127.44	1005	157
285	200	117.738	1005	158
290	200	100.71	1005	159
295	200	49.896	1005	160
295	190	65.916	1006	160
290	190	104.556	1006	159
285	190	120.12	1006	158
280	190	120.486	1006	157
275	190	117.186	1006	156
270	190	103.182	1006	155
265	190	84.318	1006	154
260	190	90.636	1006	153
255	190	114.258	1006	152
250	190	125.334	1006	151
245	190	129	1006	150
240	190	115.998	1006	149
235	190	100.434	1006	148
230	190	124.146	1006	147
225	190	176.88	1006	146
220	190	195.924	1006	145
215	190	177.798	1006	144
210	190	166.35	1006	143
205	190	175.506	1006	142
200	190	170.838	1006	141
195	190	166.812	1006	140
195	180	295.992	1007	140
200	180	301.392	1007	141
205	180	270.444	1007	142
210	180	235.566	1007	143
215	180	243.894	1007	144
220	180	251.13	1007	145

300502

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
225	180	208.56	1007	146
230	180	140.166	1007	147
235	180	108.858	1007	148
240	180	117.282	1007	149
245	180	135.408	1007	150
250	180	132.474	1007	151
255	180	124.056	1007	152
260	180	114.072	1007	153
265	180	113.34	1007	154
270	180	131.652	1007	155
275	180	146.94	1007	156
280	180	145.752	1007	157
285	180	155.454	1007	158
290	180	129.366	1007	159
295	180	87.252	1007	160
295	170	123.048	1008	160
290	170	161.868	1008	159
285	170	199.218	1008	158
280	170	174.684	1008	157
275	170	165.342	1008	156
270	170	141.174	1008	155
265	170	120.39	1008	154
260	170	128.634	1008	153
255	170	143.28	1008	152
250	170	151.428	1008	151
245	170	163.332	1008	150
240	170	161.772	1008	149
235	170	137.784	1008	148
230	170	138.336	1008	147
225	170	162.048	1008	146
220	170	182.28	1008	145
215	170	213.684	1008	144
210	170	241.974	1008	143
205	170	231.63	1008	142
200	170	229.248	1008	141
195	170	238.038	1008	140
195	160	321.258	1009	140
200	160	275.298	1009	141
205	160	284.73	1009	142
210	160	312.288	1009	143
215	160	264.036	1009	144
220	160	199.95	1009	145
225	160	191.988	1009	146
230	160	188.418	1009	147
235	160	190.524	1009	148
240	160	199.218	1009	149
245	160	189.054	1009	150
250	160	174.408	1009	151
255	160	166.992	1009	152
260	160	137.148	1009	153
265	160	134.766	1009	154
270	160	156.462	1009	155
275	160	208.56	1009	156
280	160	229.524	1009	157
285	160	236.664	1009	158
290	160	230.346	1009	159
295	160	203.064	1009	160
295	150	242.43	1010	160
290	150	270.996	1010	159
285	150	266.508	1010	158
280	150	273.282	1010	157
275	150	276.858	1010	156
270	150	238.128	1010	155
265	150	189.972	1010	154
260	150	175.23	1010	153
255	150	198.942	1010	152

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
250	150	223.752	1010	151
245	150	216.888	1010	150
240	150	219.45	1010	149
235	150	215.604	1010	148
230	150	250.122	1010	147
225	150	264.954	1010	146
220	150	226.044	1010	145
215	150	229.062	1010	144
210	150	299.466	1010	143
205	150	348.816	1010	142
200	150	341.034	1010	141
195	150	332.244	1010	140
195	140	325.38	1011	140
200	140	340.392	1011	141
205	140	340.944	1011	142
210	140	301.302	1011	143
215	140	216.978	1011	144
220	140	212.034	1011	145
225	140	262.026	1011	146
230	140	276.216	1011	147
235	140	284.454	1011	148
240	140	342.774	1011	149
245	140	388.092	1011	150
250	140	381.228	1011	151
255	140	310.728	1011	152
260	140	278.136	1011	153
265	140	276.306	1011	154
270	140	272.916	1011	155
275	140	283.446	1011	156
280	140	337.83	1011	157
285	140	360.168	1011	158
290	140	326.934	1011	159
295	140	255.066	1011	160
295	130	385.62	1012	160
290	130	394.32	1012	159
285	130	380.31	1012	158
280	130	411.894	1012	157
275	130	405.762	1012	156
270	130	338.106	1012	155
265	130	351.198	1012	154
260	130	377.286	1012	153
255	130	356.778	1012	152
250	130	326.022	1012	151
245	130	330.594	1012	150
240	130	333.066	1012	149
235	130	273.378	1012	148
230	130	236.94	1012	147
225	130	232.728	1012	146
220	130	242.064	1012	145
215	130	263.58	1012	144
210	130	248.568	1012	143
205	130	242.34	1012	142
200	130	248.748	1012	141
195	130	257.448	1012	140
195	120	233.094	1013	140
200	120	225.492	1013	141
205	120	168.366	1013	142
210	120	150.786	1013	143
215	120	168	1013	144
220	120	199.494	1013	145
225	120	176.604	1013	146
230	120	161.958	1013	147
235	120	173.124	1013	148
240	120	213.228	1013	149
245	120	263.028	1013	150
250	120	231.534	1013	151

300504

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
255	120	240.42	1013	152
260	120	231.906	1013	153
265	120	244.722	1013	154
270	120	256.254	1013	155
275	120	330.69	1013	156
280	120	328.122	1013	157
285	120	270.174	1013	158
290	120	268.98	1013	159
295	120	292.878	1013	160
295	110	618.162	1014	160
290	110	218.904	1014	159
285	110	221.832	1014	158
280	110	250.578	1014	157
275	110	264.864	1014	156
270	110	176.058	1014	155
265	110	98.142	1014	154
260	110	78	1014	153
255	110	73.062	1014	152
250	110	46.782	1014	151
245	110	82.764	1014	150
240	110	111.696	1014	149
235	110	124.422	1014	148
230	110	139.344	1014	147
225	110	169.74	1014	146
220	110	210.756	1014	145
215	110	203.34	1014	144
210	110	176.328	1014	143
205	110	164.61	1014	142
200	110	176.604	1014	141
195	110	506.652	1014	140
195	100	479.646	1015	140
200	100	292.602	1015	141
205	100	249.936	1015	142
210	100	216.522	1015	143
215	100	200.682	1015	144
220	100	189.33	1015	145
225	100	142.272	1015	146
230	100	102.906	1015	147
235	100	126.162	1015	148
240	100	123.048	1015	149
245	100	136.596	1015	150
250	100	216.708	1015	151
255	100	175.692	1015	152
260	100	114.534	1015	153
265	100	126.618	1015	154
270	100	143.004	1015	155
275	100	163.512	1015	156
280	100	177.336	1015	157
285	100	188.052	1015	158
290	100	198.672	1015	159
295	100	192.078	1015	160
310	90	89.082	1016	163
305	90	169.92	1016	162
300	90	159.852	1016	161
295	90	178.71	1016	160
290	90	162.324	1016	159
285	90	134.946	1016	158
280	90	118.38	1016	157
275	90	131.928	1016	156
270	90	146.394	1016	155
265	90	138.156	1016	154
260	90	134.58	1016	153
255	90	142.824	1016	152
250	90	145.476	1016	151
245	90	148.134	1016	150
240	90	146.208	1016	149

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
235	90	126.528	1016	148
230	90	89.172	1016	147
225	90	106.752	1016	146
220	90	162.87	1016	145
215	90	183.474	1016	144
210	90	189.42	1016	143
205	90	199.674	1016	142
200	90	217.344	1016	141
195	90	270.906	1016	140
195	80	256.62	1017	140
200	80	218.172	1017	141
205	80	170.286	1017	142
210	80	185.118	1017	143
215	80	213.87	1017	144
220	80	201.6	1017	145
225	80	179.442	1017	146
230	80	146.394	1017	147
235	80	128.448	1017	148
240	80	123.69	1017	149
245	80	132.018	1017	150
250	80	122.682	1017	151
255	80	110.964	1017	152
260	80	102.45	1017	153
265	80	102.906	1017	154
270	80	106.752	1017	155
275	80	115.542	1017	156
280	80	133.116	1017	157
285	80	133.392	1017	158
290	80	141.996	1017	159
295	80	170.652	1017	160
300	80	163.968	1017	161
305	80	149.778	1017	162
310	80	87.888	1017	163
310	70	117.096	1018	163
305	70	90.27	1018	162
300	70	98.418	1018	161
295	70	116.544	1018	160
290	70	96.132	1018	159
285	70	94.758	1018	158
280	70	90.636	1018	157
275	70	101.076	1018	156
270	70	134.034	1018	155
265	70	127.074	1018	154
260	70	118.284	1018	153
255	70	125.064	1018	152
250	70	158.112	1018	151
245	70	191.988	1018	150
240	70	248.106	1018	149
235	70	207.09	1018	148
230	70	186.768	1018	147
225	70	153.078	1018	146
220	70	163.236	1018	145
215	70	152.802	1018	144
210	70	159.666	1018	143
205	70	191.802	1018	142
200	70	220.458	1018	141
195	70	224.946	1018	140
195	60	224.124	1019	140
200	60	210.48	1019	141
205	60	189.882	1019	142
210	60	192.534	1019	143
215	60	171.936	1019	144
220	60	161.496	1019	145
225	60	138.612	1019	146
230	60	178.896	1019	147
235	60	215.148	1019	148

300506

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
240	60	256.44	1019	149
245	60	224.214	1019	150
250	60	177.612	1019	151
255	60	143.922	1019	152
260	60	141.084	1019	153
265	60	147.858	1019	154
270	60	132.384	1019	155
275	60	94.758	1019	156
280	60	89.082	1019	157
285	60	98.694	1019	158
290	60	103.914	1019	159
295	60	107.574	1019	160
300	60	118.194	1019	161
305	60	209.838	1019	162
310	60	230.802	1019	163
310	50	130.74	1020	163
305	50	119.112	1020	162
300	50	38.82	1020	161
295	50	66.012	1020	160
290	50	84.87	1020	159
285	50	78.372	1020	158
280	50	63.81	1020	157
275	50	70.86	1020	156
270	50	79.374	1020	155
265	50	83.682	1020	154
260	50	77.364	1020	153
255	50	67.932	1020	152
250	50	68.118	1020	151
245	50	73.518	1020	150
240	50	77.178	1020	149
235	50	76.356	1020	148
230	50	72.234	1020	147
225	50	64.176	1020	146
220	50	72.324	1020	145
215	50	99.426	1020	144
210	50	96.498	1020	143
205	50	95.214	1020	142
200	50	114.168	1020	141
195	50	119.016	1020	140
195	40	164.154	1021	140
200	40	150.786	1021	141
205	40	122.22	1021	142
210	40	107.94	1021	143
215	40	95.214	1021	144
220	40	82.122	1021	145
225	40	73.794	1021	146
230	40	72.144	1021	147
235	40	70.218	1021	148
240	40	72.42	1021	149
245	40	70.038	1021	150
250	40	63.264	1021	151
255	40	73.062	1021	152
260	40	59.598	1021	153
265	40	75.9	1021	154
270	40	73.698	1021	155
275	40	75.804	1021	156
280	40	78.186	1021	157
285	40	82.944	1021	158
290	40	75.438	1021	159
295	40	65.46	1021	160
300	40	48.888	1021	161
305	40	186.858	1021	162
310	40	-373.812	1021	163
310	30	249.666	1022	163
305	30	128.538	1022	162
300	30	67.014	1022	161

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
295	30	66.378	1022	160
290	30	81.846	1022	159
285	30	104.37	1022	158
280	30	117.918	1022	157
275	30	100.434	1022	156
270	30	86.886	1022	155
265	30	67.842	1022	154
260	30	68.94	1022	153
255	30	69.306	1022	152
250	30	58.32	1022	151
245	30	50.448	1022	150
240	30	47.61	1022	149
235	30	43.854	1022	148
230	30	47.7	1022	147
225	30	54.198	1022	146
220	30	52.368	1022	145
215	30	72.42	1022	144
210	30	76.266	1022	143
205	30	77.634	1022	142
200	30	43.032	1022	141
195	30	33.234	1022	140
205	20	45.87	1023	142
210	20	44.862	1023	143
215	20	53.1	1023	144
220	20	48.246	1023	145
225	20	51.084	1023	146
230	20	50.352	1023	147
235	20	46.506	1023	148
240	20	46.326	1023	149
245	20	50.718	1023	150
250	20	57.678	1023	151
255	20	72.42	1023	152
260	20	69.852	1023	153
265	20	77.544	1023	154
270	20	116.73	1023	155
275	20	148.314	1023	156
280	20	153.624	1023	157
285	20	121.488	1023	158
290	20	81.666	1023	159
295	20	61.434	1023	160
300	20	69.672	1023	161
305	20	181.368	1023	162
310	20	376.284	1023	163
310	10	141.36	1024	163
305	10	115.542	1024	162
300	10	105.654	1024	161
295	10	120.39	1024	160
290	10	124.146	1024	159
285	10	126.432	1024	158
280	10	121.398	1024	157
275	10	106.656	1024	156
270	10	86.79	1024	155
265	10	73.884	1024	154
260	10	65.004	1024	153
255	10	52.092	1024	152
250	10	24.168	1024	151
245	10	25.362	1024	150
240	10	44.772	1024	149
235	10	53.01	1024	148
230	10	58.41	1024	147
225	10	55.116	1024	146
220	10	54.93	1024	145
215	10	57.768	1024	144
210	10	60.702	1024	143
205	10	-27.924	1024	142
205	0	61.248	1025	142

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
210	0	71.958	1025	143
215	0	73.242	1025	144
220	0	66.558	1025	145
225	0	66.192	1025	146
230	0	69.762	1025	147
235	0	96.222	1025	148
240	0	109.866	1025	149
245	0	48.708	1025	150
250	0	44.862	1025	151
255	0	71.136	1025	152
260	0	99.15	1025	153
435	310	1048.188	994	188
430	310	486.966	994	187
425	310	355.044	994	186
420	310	318.24	994	185
415	310	318.51	994	184
410	310	297.27	994	183
405	310	312.468	994	182
400	310	342.684	994	181
395	310	461.424	994	180
390	310	615.42	994	179
435	300	572.202	995	188
430	300	385.71	995	187
425	300	280.884	995	186
420	300	244.08	995	185
415	300	241.056	995	184
410	300	243.99	995	183
405	300	241.884	995	182
400	300	227.142	995	181
395	300	156.828	995	180
390	300	156.096	995	179
385	300	220.092	995	178
380	300	255.618	995	177
375	300	303.222	995	176
370	300	317.874	995	175
365	300	320.892	995	174
360	300	310.638	995	173
355	300	309.354	995	172
350	300	383.604	995	171
345	300	545.838	995	170
340	300	680.784	995	169
335	300	762.636	995	168
300	290	458.04	996	161
305	290	395.688	996	162
310	290	312.558	996	163
315	290	255.522	996	164
320	290	203.616	996	165
325	290	170.838	996	166
330	290	140.994	996	167
335	290	121.218	996	168
340	290	162.414	996	169
345	290	219.45	996	170
350	290	141.906	996	171
355	290	148.68	996	172
360	290	194.364	996	173
365	290	143.37	996	174
370	290	162.78	996	175
375	290	174.132	996	176
380	290	191.436	996	177
385	290	207.732	996	178
390	290	85.602	996	179
395	290	103.452	996	180
400	290	257.814	996	181
405	290	271.914	996	182
410	290	223.482	996	183
415	290	203.52	996	184

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
420	290	222.654	996	185
425	290	254.058	996	186
430	290	587.034	996	187
435	290	725.922	996	188
435	280	983.094	997	188
430	280	552.246	997	187
425	280	247.008	997	186
420	280	193.998	997	185
415	280	173.034	997	184
410	280	210.66	997	183
405	280	265.596	997	182
400	280	257.538	997	181
395	280	130.002	997	180
390	280	42.57	997	179
385	280	143.736	997	178
380	280	165.342	997	177
375	280	150.696	997	176
370	280	159.396	997	175
365	280	150.786	997	174
360	280	176.514	997	173
355	280	158.388	997	172
350	280	146.208	997	171
345	280	132.57	997	170
340	280	124.512	997	169
335	280	127.074	997	168
330	280	126.798	997	167
325	280	120.39	997	166
320	280	110.868	997	165
315	280	106.842	997	164
310	280	114.258	997	163
305	280	132.936	997	162
300	280	147.948	997	161
295	280	157.014	997	160
290	280	173.034	997	159
285	280	178.53	997	158
280	280	171.114	997	157
275	280	212.034	997	156
270	280	207.09	997	155
265	280	228.696	997	154
260	280	214.326	997	153
255	280	227.598	997	152
260	270	120.756	998	153
265	270	132.66	998	154
270	270	146.304	998	155
275	270	115.266	998	156
280	270	134.4	998	157
285	270	133.026	998	158
290	270	127.53	998	159
295	270	99.426	998	160
300	270	111.966	998	161
305	270	109.224	998	162
310	270	98.508	998	163
315	270	95.214	998	164
320	270	60.972	998	165
325	270	74.616	998	166
330	270	66.834	998	167
335	270	85.878	998	168
340	270	93.108	998	169
345	270	101.076	998	170
350	270	114.072	998	171
355	270	131.376	998	172
360	270	161.868	998	173
365	270	131.652	998	174
370	270	94.758	998	175
375	270	98.784	998	176
380	270	185.58	998	177

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmtos/m)	Profile Number	Station Number
385	270	99.882	998	178
390	270	27.372	998	179
395	270	139.986	998	180
400	270	229.524	998	181
405	270	223.938	998	182
410	270	182.922	998	183
415	270	146.67	998	184
420	270	128.538	998	185
425	270	176.514	998	186
430	270	520.932	998	187
435	270	664.212	998	188
435	260	878.724	999	188
430	260	466.92	999	187
425	260	191.988	999	186
420	260	169.554	999	185
415	260	180.45	999	184
410	260	188.418	999	183
405	260	194.184	999	182
400	260	193.452	999	181
395	260	150.786	999	180
390	260	49.344	999	179
385	260	51.45	999	178
380	260	184.476	999	177
375	260	146.76	999	176
370	260	99.516	999	175
365	260	97.872	999	174
360	260	122.772	999	173
355	260	111.234	999	172
350	260	94.848	999	171
345	260	82.854	999	170
340	260	78.738	999	169
335	260	69.582	999	168
330	260	73.794	999	167
325	260	86.334	999	166
320	260	88.44	999	165
315	260	79.374	999	164
310	260	82.578	999	163
305	260	114.534	999	162
300	260	117.186	999	161
295	260	100.614	999	160
290	260	149.598	999	159
285	260	157.746	999	158
280	260	150.054	999	157
275	260	132.384	999	156
270	260	115.998	999	155
265	260	106.386	999	154
260	260	109.77	999	153
260	250	113.07	1000	153
265	250	98.874	1000	154
270	250	50.352	1000	155
275	250	81.024	1000	156
280	250	120.39	1000	157
285	250	141.996	1000	158
290	250	120.21	1000	159
295	250	100.614	1000	160
300	250	83.496	1000	161
305	250	76.356	1000	162
310	250	68.94	1000	163
315	250	73.794	1000	164
320	250	70.128	1000	165
325	250	71.958	1000	166
330	250	64.638	1000	167
335	250	69.948	1000	168
340	250	34.152	1000	169
345	250	56.76	1000	170
350	250	79.74	1000	171

300511

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
355	250	63.54	1000	172
360	250	26.55	1000	173
365	250	34.698	1000	174
370	250	124.788	1000	175
375	250	229.434	1000	176
380	250	158.112	1000	177
385	250	24.168	1000	178
390	250	88.806	1000	179
395	250	190.248	1000	180
400	250	195.558	1000	181
405	250	172.668	1000	182
410	250	155.274	1000	183
415	250	154.542	1000	184
420	250	157.014	1000	185
425	250	174.774	1000	186
430	250	342.042	1000	187
435	250	657.258	1000	188
435	240	578.244	1001	188
430	240	298.464	1001	187
425	240	192.996	1001	186
420	240	168.642	1001	185
415	240	163.056	1001	184
410	240	161.316	1001	183
405	240	177.612	1001	182
400	240	189.054	1001	181
395	240	202.608	1001	180
390	240	152.982	1001	179
385	240	43.764	1001	178
380	240	110.232	1001	177
375	240	218.442	1001	176
370	240	122.958	1001	175
365	240	21.33	1001	174
360	240	55.026	1001	173
355	240	109.314	1001	172
350	240	112.242	1001	171
345	240	93.75	1001	170
340	240	78.462	1001	169
335	240	72.144	1001	168
330	240	65.916	1001	167
325	240	56.856	1001	166
320	240	60.336	1001	165
315	240	72.966	1001	164
310	240	82.674	1001	163
305	240	75.714	1001	162
300	240	71.778	1001	161
295	240	97.41	1001	160
290	240	125.43	1001	159
285	240	120.024	1001	158
280	240	116.364	1001	157
275	240	125.7	1001	156
270	240	161.04	1001	155
265	240	80.292	1001	154
260	240	49.254	1001	153
260	230	29.112	1002	153
265	230	49.344	1002	154
270	230	131.928	1002	155
275	230	139.068	1002	156
280	230	121.854	1002	157
285	230	110.322	1002	158
290	230	110.502	1002	159
295	230	76.632	1002	160
300	230	60.15	1002	161
305	230	74.25	1002	162
310	230	65.736	1002	163
315	230	65.55	1002	164
320	230	69.03	1002	165

300512

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
325	230	61.158	1002	166
330	230	59.328	1002	167
335	230	61.98	1002	168
340	230	46.05	1002	169
345	230	87.252	1002	170
350	230	95.856	1002	171
355	230	35.886	1002	172
360	230	21.15	1002	173
365	230	33.144	1002	174
370	230	39.186	1002	175
375	230	175.506	1002	176
380	230	95.946	1002	177
385	230	69.948	1002	178
390	230	166.44	1002	179
395	230	202.698	1002	180
400	230	211.032	1002	181
405	230	183.564	1002	182
410	230	140.994	1002	183
415	230	134.58	1002	184
420	230	131.376	1002	185
425	230	160.764	1002	186
430	230	292.692	1002	187
435	230	498.594	1002	188
435	220	401.55	1003	188
430	220	259.188	1003	187
425	220	153.81	1003	186
420	220	119.202	1003	185
415	220	121.308	1003	184
410	220	136.416	1003	183
405	220	170.652	1003	182
400	220	198.762	1003	181
395	220	200.868	1003	180
390	220	237.306	1003	179
385	220	197.478	1003	178
380	220	125.52	1003	177
375	220	180.45	1003	176
370	220	129.636	1003	175
365	220	57.954	1003	174
360	220	29.388	1003	173
355	220	43.212	1003	172
350	220	131.838	1003	171
345	220	132.384	1003	170
340	220	91.188	1003	169
335	220	66.834	1003	168
330	220	77.453	1003	167
325	220	80.934	1003	166
320	220	91.464	1003	165
315	220	87.798	1003	164
310	220	80.292	1003	163
305	220	75.899	1003	162
300	220	57.498	1003	161
295	220	65.736	1003	160
290	220	91.092	1003	159
285	220	86.976	1003	158
280	220	86.52	1003	157
275	220	107.94	1003	156
270	220	72.876	1003	155
265	220	15.474	1003	154
260	220	7.782	1003	153
260	210	24.354	1004	153
265	210	11.628	1004	154
270	210	80.292	1004	155
275	210	114.258	1004	156
280	210	113.706	1004	157
285	210	101.346	1004	158
290	210	80.658	1004	159

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
295	210	54.474	1004	160
300	210	53.652	1004	161
305	210	79.374	1004	162
310	210	85.05	1004	163
315	210	91.002	1004	164
320	210	87.342	1004	165
325	210	88.35	1004	166
330	210	91.464	1004	167
335	210	102.906	1004	168
340	210	118.47	1004	169
345	210	141.084	1004	170
350	210	153.168	1004	171
355	210	74.526	1004	172
360	210	49.254	1004	173
365	210	120.756	1004	174
370	210	144.468	1004	175
375	210	167.544	1004	176
380	210	153.624	1004	177
385	210	244.17	1004	178
390	210	288.576	1004	179
395	210	199.86	1004	180
400	210	121.308	1004	181
405	210	112.062	1004	182
410	210	129.546	1004	183
415	210	119.112	1004	184
420	210	121.488	1004	185
425	210	143.832	1004	186
430	210	223.386	1004	187
435	210	630.432	1004	188
435	200	612.306	1005	188
430	200	245.364	1005	187
425	200	137.238	1005	186
420	200	97.41	1005	185
415	200	96.036	1005	184
410	200	120.3	1005	183
405	200	121.584	1005	182
400	200	107.85	1005	181
395	200	139.344	1005	180
390	200	186.678	1005	179
385	200	190.794	1005	178
380	200	164.976	1005	177
375	200	124.878	1005	176
370	200	123.504	1005	175
365	200	170.106	1005	174
360	200	177.06	1005	173
355	200	81.39	1005	172
350	200	56.67	1005	171
345	200	110.688	1005	170
340	200	121.398	1005	169
335	200	119.934	1005	168
330	200	108.03	1005	167
325	200	98.052	1005	166
320	200	95.946	1005	165
315	200	109.5	1005	164
310	200	107.664	1005	163
305	200	98.508	1005	162
300	200	64.638	1005	161
295	200	49.074	1005	160
290	200	75.258	1005	159
285	200	106.29	1005	158
280	200	120.486	1005	157
275	200	120.486	1005	156
270	200	108.672	1005	155
265	200	56.76	1005	154
260	200	43.122	1005	153
260	190	98.784	1006	153

300514

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
265	190	96.588	1006	154
270	190	108.216	1006	155
275	190	117.552	1006	156
280	190	122.04	1006	157
285	190	125.154	1006	158
290	190	115.176	1006	159
295	190	73.794	1006	160
300	190	66.558	1006	161
305	190	103.086	1006	162
310	190	146.85	1006	163
315	190	154.818	1006	164
320	190	135.588	1006	165
325	190	113.34	1006	166
330	190	161.13	1006	167
335	190	179.352	1006	168
340	190	171.204	1006	169
345	190	119.016	1006	170
350	190	113.25	1006	171
355	190	175.962	1006	172
360	190	249.936	1006	173
365	190	231.444	1006	174
370	190	133.668	1006	175
375	190	63.72	1006	176
380	190	154.266	1006	177
385	190	193.818	1006	178
390	190	174.96	1006	179
395	190	140.532	1006	180
400	190	111.966	1006	181
405	190	118.65	1006	182
410	190	116.73	1006	183
415	190	59.418	1006	184
420	190	9.612	1006	185
425	190	7.968	1006	186
430	190	127.53	1006	187
435	190	606.63	1006	188
435	180	578.982	1007	188
430	180	58.23	1007	187
425	180	89.724	1007	186
420	180	67.476	1007	185
415	180	81.21	1007	184
410	180	108.948	1007	183
405	180	106.11	1007	182
400	180	102.174	1007	181
395	180	121.122	1007	180
390	180	139.62	1007	179
385	180	176.424	1007	178
380	180	160.764	1007	177
375	180	35.34	1007	176
370	180	50.262	1007	175
365	180	174.864	1007	174
360	180	214.602	1007	173
355	180	182.28	1007	172
350	180	179.076	1007	171
345	180	168.546	1007	170
340	180	105.192	1007	169
335	180	112.884	1007	168
330	180	169.278	1007	167
325	180	144.012	1007	166
320	180	139.344	1007	165
315	180	175.782	1007	164
310	180	167.724	1007	163
305	180	132.474	1007	162
300	180	79.56	1007	161
295	180	81.48	1007	160
290	180	127.44	1007	159
285	180	158.754	1007	158

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
280	180	151.614	1007	157
275	180	148.866	1007	156
270	180	136.416	1007	155
265	180	115.356	1007	154
260	180	115.998	1007	153
260	170	135.408	1008	153
265	170	120.756	1008	154
270	170	122.682	1008	155
275	170	157.656	1008	156
280	170	169.554	1008	157
285	170	202.056	1008	158
290	170	187.5	1008	159
295	170	128.172	1008	160
300	170	130.098	1008	161
305	170	195.834	1008	162
310	170	246.462	1008	163
315	170	298.83	1008	164
320	170	276.858	1008	165
325	170	156.648	1008	166
330	170	115.908	1008	167
335	170	118.926	1008	168
340	170	159.12	1008	169
345	170	186.402	1008	170
350	170	175.962	1008	171
355	170	199.584	1008	172
360	170	223.938	1008	173
365	170	161.13	1008	174
370	170	31.86	1008	175
375	170	57.222	1008	176
380	170	179.994	1008	177
385	170	205.812	1008	178
390	170	186.858	1008	179
395	170	121.218	1008	180
400	170	67.29	1008	181
405	170	87.342	1008	182
410	170	131.928	1008	183
415	170	221.01	1008	184
420	170	164.064	1008	185
425	170	171.384	1008	186
430	170	392.214	1008	187
435	170	632.082	1008	188
435	160	279.234	1009	188
430	160	118.65	1009	187
425	160	117.828	1009	186
420	160	198.852	1009	185
415	160	165.708	1009	184
410	160	154.818	1009	183
405	160	113.16	1009	182
400	160	59.142	1009	181
395	160	50.814	1009	180
390	160	134.676	1009	179
385	160	223.662	1009	178
380	160	234.192	1009	177
375	160	150.972	1009	176
370	160	0.276	1009	175
365	160	27.192	1009	174
360	160	170.016	1009	173
355	160	208.008	1009	172
350	160	178.896	1009	171
345	160	138.978	1009	170
340	160	153.624	1009	169
335	160	207.366	1009	168
330	160	182.832	1009	167
325	160	134.946	1009	166
320	160	143.466	1009	165
315	160	179.262	1009	164

300516

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
310	160	200.868	1009	163
305	160	221.376	1009	162
300	160	197.934	1009	161
295	160	203.43	1009	160
290	160	219.45	1009	159
285	160	235.656	1009	158
280	160	228.972	1009	157
275	160	214.782	1009	156
270	160	176.604	1009	155
265	160	144.198	1009	154
260	160	135.684	1009	153
260	150	176.79	1010	153
265	150	196.836	1010	154
270	150	244.08	1010	155
275	150	274.29	1010	156
280	150	274.842	1010	157
285	150	272.736	1010	158
290	150	272.736	1010	159
295	150	232.542	1010	160
300	150	200.226	1010	161
305	150	188.508	1010	162
310	150	160.308	1010	163
315	150	164.064	1010	164
320	150	154.818	1010	165
325	150	154.998	1010	166
330	150	200.406	1010	167
335	150	188.322	1010	168
340	150	144.102	1010	169
345	150	140.076	1010	170
350	150	177.978	1010	171
355	150	203.34	1010	172
360	150	139.254	1010	173
365	150	3.114	1010	174
370	150	29.298	1010	175
375	150	208.65	1010	176
380	150	255.618	1010	177
385	150	177.336	1010	178
390	150	52.554	1010	179
395	150	37.902	1010	180
400	150	112.974	1010	181
405	150	112.704	1010	182
410	150	98.97	1010	183
415	150	95.034	1010	184
420	150	126.528	1010	185
425	150	114.072	1010	186
430	150	74.892	1010	187
435	150	63.354	1010	188
435	140	53.466	1011	188
430	140	77.453	1011	187
425	140	123.138	1011	186
420	140	122.592	1011	185
415	140	115.266	1011	184
410	140	120.12	1011	183
405	140	126.984	1011	182
400	140	148.59	1011	181
395	140	138.792	1011	180
390	140	11.262	1011	179
385	140	49.62	1011	178
380	140	235.38	1011	177
375	140	243.714	1011	176
370	140	64.452	1011	175
365	140	-8.148	1011	174
360	140	140.808	1011	173
355	140	246.552	1011	172
350	140	230.166	1011	171
345	140	182.742	1011	170

300517

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
340	140	183.288	1011	169
335	140	218.172	1011	168
330	140	205.992	1011	167
325	140	137.418	1011	166
320	140	151.428	1011	165
315	140	216.798	1011	164
310	140	250.212	1011	163
305	140	214.602	1011	162
300	140	148.866	1011	161
295	140	202.512	1011	160
290	140	309.084	1011	159
285	140	358.248	1011	158
280	140	372.714	1011	157
275	140	323.184	1011	156
270	140	295.35	1011	155
265	140	291.048	1011	154
260	140	271.182	1011	153
260	130	379.302	1012	153
265	130	366.3	1012	154
270	130	351.012	1012	155
275	130	453.918	1012	156
280	130	449.616	1012	157
285	130	404.844	1012	158
290	130	417.666	1012	159
295	130	411.162	1012	160
300	130	279.966	1012	161
305	130	126.798	1012	162
310	130	91.554	1012	163
315	130	175.326	1012	164
320	130	197.202	1012	165
325	130	176.97	1012	166
330	130	249.48	1012	167
335	130	287.292	1012	168
340	130	229.434	1012	169
345	130	185.85	1012	170
350	130	222.108	1012	171
355	130	218.172	1012	172
360	130	100.71	1012	173
365	130	117.738	1012	174
370	130	250.578	1012	175
375	130	229.614	1012	176
380	130	11.442	1012	177
385	130	21.24	1012	178
390	130	202.512	1012	179
395	130	199.038	1012	180
400	130	144.654	1012	181
405	130	136.416	1012	182
410	130	132.294	1012	183
415	130	137.514	1012	184
420	130	110.868	1012	185
425	130	88.074	1012	186
430	130	74.25	1012	187
435	130	210.294	1012	188
295	140	196.836	1011	160
300	140	138.792	1011	161
305	140	185.394	1011	162
310	140	239.316	1011	163
315	140	208.74	1011	164
320	140	152.982	1011	165
325	140	131.562	1011	166
330	140	185.67	1011	167
335	140	209.748	1011	168
340	140	180.45	1011	169
345	140	176.514	1011	170
350	140	210.294	1011	171
355	140	218.994	1011	172

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
360	140	136.32	1011	173
365	140	19.5	1011	174
370	140	62.622	1011	175
375	140	212.676	1011	176
380	140	243.714	1011	177
385	140	102.996	1011	178
390	140	22.614	1011	179
395	140	97.32	1011	180
400	140	155.82	1011	181
405	140	137.604	1011	182
410	140	111.054	1011	183
415	140	104.37	1011	184
420	140	115.266	1011	185
425	140	130.374	1011	186
430	140	111.966	1011	187
435	140	197.112	1011	188
435	130	156.924	1012	188
430	130	85.878	1012	187
425	130	91.277	1012	186
420	130	112.152	1012	185
415	130	139.62	1012	184
410	130	131.376	1012	183
405	130	134.31	1012	182
400	130	146.94	1012	181
395	130	185.76	1012	180
390	130	174.864	1012	179
385	130	23.622	1012	178
380	130	43.668	1012	177
375	130	224.67	1012	176
370	130	229.8	1012	175
365	130	107.76	1012	174
360	130	109.59	1012	173
355	130	200.04	1012	172
350	130	208.74	1012	171
345	130	183.474	1012	170
340	130	215.148	1012	169
335	130	266.694	1012	168
330	130	235.842	1012	167
325	130	176.79	1012	166
320	130	188.598	1012	165
315	130	178.71	1012	164
310	130	104.826	1012	163
305	130	129.366	1012	162
300	130	252.684	1012	161
295	130	354.582	1012	160
295	120	301.482	1013	160
300	120	262.758	1013	161
305	120	212.496	1013	162
310	120	149.598	1013	163
315	120	110.778	1013	164
320	120	156.738	1013	165
325	120	232.452	1013	166
330	120	329.04	1013	167
335	120	392.67	1013	168
340	120	310.458	1013	169
345	120	256.44	1013	170
350	120	278.502	1013	171
355	120	262.572	1013	172
360	120	209.658	1013	173
365	120	211.032	1013	174
370	120	197.202	1013	175
375	120	66.834	1013	176
380	120	44.862	1013	177
385	120	201.6	1013	178
390	120	245.454	1013	179
395	120	154.176	1013	180

300519

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
400	120	109.68	1013	181
405	120	114.714	1013	182
410	120	128.358	1013	183
415	120	125.61	1013	184
420	120	107.028	1013	185
425	120	100.434	1013	186
430	120	102.72	1013	187
435	120	99.15	1013	188
435	110	116.364	1014	188
430	110	120.942	1014	187
425	110	121.584	1014	186
420	110	138.156	1014	185
415	110	144.468	1014	184
410	110	177.702	1014	183
405	110	151.062	1014	182
400	110	86.424	1014	181
395	110	146.67	1014	180
390	110	261.75	1014	179
385	110	230.988	1014	178
380	110	90.546	1014	177
375	110	63.72	1014	176
370	110	199.038	1014	175
365	110	416.562	1014	174
360	110	524.508	1014	173
355	110	486.6	1014	172
350	110	407.502	1014	171
345	110	241.974	1014	170
340	110	170.838	1014	169
335	110	-11.538	1014	168
380	100	203.34	1015	177
385	100	207	1015	178
390	100	283.632	1015	179
395	100	225.588	1015	180
400	100	190.062	1015	181
405	100	206.268	1015	182
410	100	163.332	1015	183
415	100	154.542	1015	184
420	100	162.234	1015	185
425	100	145.938	1015	186
430	100	145.566	1015	187
435	100	155.82	1015	188
435	90	180.906	1016	188
430	90	179.442	1016	187
425	90	227.508	1016	186
420	90	233.184	1016	185
415	90	160.128	1016	184
410	90	228.33	1016	183
405	90	343.962	1016	182
400	90	362.916	1016	181
395	90	300.384	1016	180
390	90	229.8	1016	179
385	90	176.514	1016	178
380	90	170.286	1016	177
380	80	221.01	1017	177
385	80	150.876	1017	178
390	80	168.822	1017	179
395	80	300.75	1017	180
400	80	397.158	1017	181
405	80	388.368	1017	182
410	80	235.014	1017	183
415	80	177.336	1017	184
420	80	282.714	1017	185
425	80	237.306	1017	186
430	80	158.478	1017	187
435	80	163.512	1017	188
435	70	141.45	1018	188

300520

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
430	70	202.146	1018	187
425	70	410.796	1018	186
420	70	458.496	1018	185
415	70	278.226	1018	184
410	70	250.488	1018	183
405	70	350.37	1018	182
400	70	364.104	1018	181
395	70	236.112	1018	180
390	70	201.234	1018	179
385	70	152.16	1018	178
380	60	237.216	1019	177
385	60	164.52	1019	178
390	60	188.142	1019	179
395	60	215.148	1019	180
400	60	319.794	1019	181
405	60	344.97	1019	182
410	60	307.158	1019	183
415	60	315.03	1019	184
420	60	247.926	1019	185
425	60	304.962	1019	186
430	60	318.33	1019	187
435	60	250.122	1019	188
435	50	254.244	1020	188
430	50	317.598	1020	187
425	50	351.378	1020	186
420	50	248.382	1020	185
415	50	233.55	1020	184
410	50	250.674	1020	183
405	50	248.106	1020	182
400	50	234.558	1020	181
395	50	221.01	1020	180
390	50	208.56	1020	179
385	50	198.12	1020	178
380	50	209.016	1020	177
380	40	280.884	1021	177
385	40	278.868	1021	178
390	40	300.57	1021	179
395	40	296.814	1021	180
400	40	286.194	1021	181
405	40	315.582	1021	182
410	40	349.734	1021	183
415	40	345.06	1021	184
420	40	341.49	1021	185
425	40	339.936	1021	186
430	40	328.218	1021	187
435	40	294.252	1021	188
380	30	251.406	1022	177
385	30	125.886	1022	178
390	30	108.582	1022	179
395	30	217.44	1022	180
400	30	-103.452	1022	181
405	30	205.716	1022	182
410	30	404.844	1022	183
415	30	352.752	1022	184
420	30	302.124	1022	185
425	30	292.326	1022	186
430	30	275.85	1022	187
435	30	288.39	1022	188
380	20	303.042	1023	177
385	20	228.24	1023	178
390	20	441.468	1023	179
415	20	347.352	1023	184
420	20	294.708	1023	185
425	20	200.226	1023	186
430	20	204.528	1023	187
435	20	305.238	1023	188

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
435	10	342.864	1024	188
430	10	170.928	1024	187
425	10	62.166	1024	186
420	10	153.168	1024	185
415	10	306.702	1024	184
410	10	284.91	1024	183
405	10	282.438	1024	182
400	10	467.928	1024	181
395	10	585.39	1024	180
390	10	339.57	1024	179
385	10	212.766	1024	178
380	10	374.082	1024	177
385	0	275.022	1025	178
390	0	291.048	1025	179
395	0	270.54	1025	180
400	0	244.902	1025	181
405	0	215.604	1025	182
410	0	200.778	1025	183
415	0	255.888	1025	184
420	0	237.03	1025	185
425	0	108.858	1025	186
430	0	123.594	1025	187
435	0	199.95	1025	188
195	160	313.296	1009	140
190	160	346.434	1009	139
185	160	321.99	1009	138
180	160	267.15	1009	137
175	160	205.902	1009	136
170	160	204.348	1009	135
165	160	221.466	1009	134
160	160	233.826	1009	133
155	160	247.008	1009	132
150	160	254.334	1009	131
145	160	264.132	1009	130
140	160	262.662	1009	129
135	160	264.036	1009	128
130	160	278.778	1009	127
125	160	297.27	1009	126
120	160	268.524	1009	125
115	160	196.2	1009	124
110	160	197.388	1009	123
105	160	250.488	1009	122
100	160	293.154	1009	121
95	160	287.112	1009	120
90	160	237.03	1009	119
85	160	196.2	1009	118
80	160	145.842	1009	117
75	160	142.272	1009	116
70	160	171.936	1009	115
65	160	127.164	1009	114
60	160	85.146	1009	113
55	160	72.234	1009	112
50	160	76.812	1009	111
45	160	71.322	1009	110
40	160	70.128	1009	109
35	160	74.616	1009	108
30	160	36.252	1009	107
25	160	19.59	1009	106
20	160	-5.586	1009	105
20	150	-34.974	1010	105
25	150	-89.538	1010	106
30	150	-26.916	1010	107
35	150	83.31	1010	108
40	150	79.104	1010	109
45	150	77.453	1010	110
50	150	83.586	1010	111

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
55	150	86.52	1010	112
60	150	89.904	1010	113
65	150	102.174	1010	114
70	150	125.886	1010	115
75	150	140.622	1010	116
80	150	165.894	1010	117
85	150	193.998	1010	118
90	150	232.362	1010	119
95	150	262.482	1010	120
100	150	292.056	1010	121
105	150	339.114	1010	122
110	150	332.064	1010	123
115	150	309.45	1010	124
120	150	312.654	1010	125
125	150	350.646	1010	126
130	150	334.902	1010	127
135	150	341.31	1010	128
140	150	314.94	1010	129
145	150	325.56	1010	130
150	150	305.514	1010	131
155	150	278.502	1010	132
160	150	291.138	1010	133
165	150	297.456	1010	134
170	150	301.482	1010	135
175	150	273.282	1010	136
180	150	277.68	1010	137
185	150	311.826	1010	138
190	150	331.512	1010	139
195	150	336.546	1010	140
195	140	318.33	1011	140
190	140	278.592	1011	139
185	140	211.302	1011	138
180	140	197.298	1011	137
175	140	214.326	1011	136
170	140	255.156	1011	135
165	140	279.51	1011	134
160	140	276.306	1011	133
155	140	265.5	1011	132
150	140	280.332	1011	131
145	140	311.37	1011	130
140	140	345.792	1011	129
135	140	378.024	1011	128
130	140	369.234	1011	127
125	140	344.058	1011	126
120	140	345.426	1011	125
115	140	381.96	1011	124
110	140	381.408	1011	123
105	140	320.436	1011	122
100	140	235.2	1011	121
95	140	266.874	1011	120
90	140	239.046	1011	119
85	140	99.702	1011	118
80	140	75.161	1011	117
75	140	111.876	1011	116
70	140	130.83	1011	115
65	140	149.142	1011	114
60	140	131.742	1011	113
55	140	111.054	1011	112
50	140	103.818	1011	111
45	140	110.502	1011	110
40	140	106.02	1011	109
35	140	98.694	1011	108
30	140	22.794	1011	107
25	140	-279.786	1011	106
20	140	-30.762	1011	105
15	140	-263.58	1011	104

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
10	140	-72.144	1011	103
5	140	75.99	1011	102
0	140	95.399	1011	101
0	130	94.482	1012	101
5	130	92.928	1012	102
10	130	20.598	1012	103
15	130	-203.34	1012	104
20	130	-180.816	1012	105
25	130	-268.89	1012	106
30	130	-207.186	1012	107
35	130	-9.246	1012	108
40	130	-60.972	1012	109
45	130	-22.428	1012	110
50	130	13.824	1012	111
55	130	-63.81	1012	112
60	130	-4.854	1012	113
65	130	-46.416	1012	114
70	130	-21.06	1012	115
75	130	47.058	1012	116
80	130	138.978	1012	117
85	130	98.874	1012	118
90	130	182.1	1012	119
95	130	267.516	1012	120
100	130	183.108	1012	121
105	130	241.788	1012	122
110	130	379.668	1012	123
115	130	422.976	1012	124
120	130	374.268	1012	125
125	130	336.18	1012	126
130	130	353.028	1012	127
135	130	354.768	1012	128
140	130	350.832	1012	129
145	130	325.284	1012	130
150	130	326.112	1012	131
155	130	323.73	1012	132
160	130	279.33	1012	133
165	130	241.698	1012	134
170	130	247.47	1012	135
175	130	232.818	1012	136
180	130	225.492	1012	137
185	130	219.726	1012	138
190	130	216.798	1012	139
195	130	225.312	1012	140
195	120	251.772	1013	140
190	120	275.484	1013	139
185	120	250.944	1013	138
180	120	212.4	1013	137
175	120	217.806	1013	136
170	120	253.326	1013	135
165	120	245.82	1013	134
160	120	267.792	1013	133
155	120	322.722	1013	132
150	120	348.084	1013	131
145	120	326.844	1013	130
140	120	354.402	1013	129
135	120	396.24	1013	128
130	120	362.55	1013	127
125	120	317.412	1013	126
120	120	309.816	1013	125
115	120	314.118	1013	124
110	120	330.87	1013	123
105	120	231.72	1013	122
100	120	159.21	1013	121
95	120	225.126	1013	120
90	120	230.802	1013	119
85	120	156.006	1013	118

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
80	120	134.946	1013	117
75	120	77.088	1013	116
70	120	38.454	1013	115
65	120	-65.55	1013	114
60	120	-137.418	1013	113
55	120	-146.76	1013	112
50	120	-102.084	1013	111
45	120	49.62	1013	110
40	120	-58.23	1013	109
35	120	-18.312	1013	108
30	120	-24.168	1013	107
25	120	-24.534	1013	106
20	120	77.82	1013	105
15	120	16.662	1013	104
10	120	65.55	1013	103
5	120	94.572	1013	102
0	120	127.164	1013	101
0	110	-85.146	1014	101
5	110	-15.474	1014	102
10	110	-180.906	1014	103
15	110	-239.226	1014	104
20	110	264.402	1014	105
25	110	-283.17	1014	106
30	110	-96.132	1014	107
35	110	-36.714	1014	108
40	110	165.894	1014	109
45	110	141.726	1014	110
50	110	100.524	1014	111
55	110	102.084	1014	112
60	110	254.79	1014	113
65	110	318.42	1014	114
70	110	281.436	1014	115
75	110	184.476	1014	116
80	110	116.82	1014	117
85	110	168.732	1014	118
90	110	263.4	1014	119
95	110	32.316	1014	120
100	110	-50.082	1014	121
105	110	39.732	1014	122
110	110	27.282	1014	123
115	110	-37.902	1014	124
120	110	178.344	1014	125
125	110	285.738	1014	126
130	110	307.89	1014	127
135	110	389.742	1014	128
140	110	398.256	1014	129
145	110	348.264	1014	130
150	110	392.394	1014	131
155	110	395.688	1014	132
160	110	303.222	1014	133
165	110	263.214	1014	134
170	110	272.736	1014	135
175	110	222.108	1014	136
180	110	184.296	1014	137
185	110	213.96	1014	138
190	110	235.932	1014	139
195	110	203.064	1014	140
195	100	313.11	1015	140
190	100	313.842	1015	139
185	100	202.608	1015	138
180	100	136.782	1015	137
175	100	191.712	1015	136
170	100	388.458	1015	135
165	100	464.172	1015	134
160	100	427.644	1015	133
155	100	432.864	1015	132

**EM Conductivity Data
Martin Aaron Site RI/RAA**

X-Coord (feet)	Y-Coord (feet)	Conductivity (mmhos/m)	Profile Number	Station Number
150	100	321.078	1015	131
145	100	338.106	1015	130
140	100	302.58	1015	129
135	100	240.786	1015	128
130	100	252.684	1015	127
125	100	255.246	1015	126
120	100	259.824	1015	125
115	100	88.806	1015	124
110	100	52.92	1015	123
105	100	-55.296	1015	122
100	100	5.766	1015	121
95	100	-85.416	1015	120
90	100	178.434	1015	119
85	100	220.914	1015	118
80	100	73.608	1015	117
75	100	107.298	1015	116
70	100	246.462	1015	115
65	100	264.402	1015	114
60	100	188.598	1015	113
55	100	167.724	1015	112
50	100	159.942	1015	111
45	100	111.696	1015	110
40	100	56.124	1015	109
35	100	69.948	1015	108
30	100	47.88	1015	107
25	100	121.854	1015	106
20	100	-85.416	1015	105
15	100	24.72	1015	104
10	100	-195.006	1015	103
5	100	-45.138	1015	102
0	100	-38.82	1015	101
0	90	-42.57	1016	101
5	90	-53.466	1016	102
10	90	-281.982	1016	103
15	90	-88.806	1016	104
20	90	-73.242	1016	105
25	90	82.578	1016	106
30	90	100.158	1016	107
35	90	102.354	1016	108
40	90	111.51	1016	109
45	90	152.07	1016	110
50	90	177.246	1016	111
55	90	174.864	1016	112
60	90	168.822	1016	113
65	90	172.122	1016	114
70	90	162.138	1016	115
75	90	124.056	1016	116
80	90	116.64	1016	117
85	90	175.326	1016	118
90	90	193.362	1016	119
95	90	161.682	1016	120
100	90	128.904	1016	121
105	90	70.77	1016	122
110	90	139.524	1016	123
115	90	207	1016	124
120	90	230.256	1016	125
125	90	266.052	1016	126
0	80	160.128	1017	101
5	80	74.981	1017	102
10	80	-17.67	1017	103
15	80	67.38	1017	104
20	80	53.1	1017	105
25	80	81.756	1017	106
30	80	108.216	1017	107
35	80	115.266	1017	108
40	80	86.886	1017	109

Martin Aaron Site RI/RAA

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